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IMPROVEMENT OF THE UNITED STATES MARINE CORPS COMBAT DEVELOPMENT SYSTEM

by

Stephen M. Wilson

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Thesis Advisor: Barry Frew

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Recommendations for improving the CDS include commercial and government management techniques and performance measurement models. A knowledge management (KM) study of British Petroleum and a study of Microsoft are introduced as examples of how KM can improve CDS. Merging the two main information systems that support CDS is recommended to provide cost and effort savings within Marine Corps Systems Command and Marine Corps Combat Development Command.

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IMPROVEMENT OF THE UNITED STATES MARINE CORPS COMBAT DEVELOPMENT SYSTEM

Stephen M. Wilson
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Author: _____
Stephen M. Wilson

Approved by: _____
Barry Frew, Thesis Advisor

_____
Carl R. Jones, Associate Advisor

_____
Dan C. Boger, Chairman
Information Systems Academic Group

ABSTRACT

In this thesis, possible methods for improving the U.S. Marine Corps Combat Development System are introduced. The Combat Development System (CDS) is a system designed to produce integrated capabilities for the U.S. Marine Corps.

A review of the CDS's doctrinal implementation, such as orders as directives, and actual implementation, through organizational visits and personal interviews, highlight several possible methods for improving the CDS.

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I. INTRODUCTION

> The Marine Corps is preparing to win in the 21st Century by institutionalizing innovation and by developing the hardware, software, doctrine, and tactics required for combat success on the conflicts and rapidly moving battlefield of the future. [Ref. 5, 12]

As articulated by General Krulak, the U.S. Marine Corps is preparing for the future by investing in innovative ideas and technologies. General Krulak's goal for The U.S. Marine Corps is to take these innovations and technologies and turn them into integrated capabilities by using the Combat Development System (CDS). [Ref. 5, 64]

The CDS comprises the Marine Corps' business enterprise (MCBE) which is separate and distinct from its operational element. The role of the MCBE is to provide its customer, the Fleet Marine Force (FMF), with integrated solutions to identified deficiencies in doctrine, organization, training, equipment, and support.

In the Marine Corps' not too distant past, organizations that currently fall within the CDS made functional decisions independent of one another. Consequently, changes in one Marine Corps functional area were adopted without consideration for how that change would

impact other functional areas. At the same time, information systems were being designed and fielded without consideration for their ability to be integrated into the existing architecture. Consequently, the Marine Corps was spending money to fix problems that could have been prevented if the MCBE were properly integrated.

The identification of a business enterprise within the Marine Corps was and still remains a major paradigm shift for many Marines. Fortunately, senior leadership in the Marine Corps recognized the need to improve the manner in which the Marine Corps supports its operational forces and designed the CDS.

A. PURPOSE

The purpose of this research is to identify management and IT methods to improve the CDS. By examining the doctrinal structure and procedures of the CDS against the actual implementation, the author highlights areas that can be improved. The author's goal is to articulate management and IT methods found and used in several corporations that can be utilized to enhance the existing CDS.

B. RESEARCH QUESTION

The primary research question is:

- What improvements can be applied to the Combat Development System with regards to management procedures and IT systems?

Secondary research questions include:

- What change management procedures were used to introduce the Combat Development System?

- Are metrics used to measure performance improvement in the CDS?

- What is the current methodology used by the U.S. Marine Corps for introducing new IT equipment into the Fleet Marine Force (FMF)?

C. METHODOLOGY

Research conducted for this thesis included a literature survey, personal and phone interviews, and the informal collaboration of fellow Marines. The literature survey included an initial review of U.S. Marine Corps doctrine relating to the Combat Development System (CDS), command, control, communications, computers, and intelligence (C4I), and business process reengineering. Information from these sources built the framework for the thesis and served as the basis for conducting interviews. Additionally, literature involving management issues (change management and knowledge management) and information technology (IT) issues was reviewed.

Personal interviews were conducted with individuals from each of the organizations within the Combat Development

System. Specific questions concerning the individuals understanding of the CDS and any recommendations for improvement were asked. Phone interviews were conducted to clarify statements made during the personal interviews as well as with individuals who could not be personally interviewed. All respondents were provided with a copy of their comments to be included in the thesis. Respondents were told that they would be listed in the List of References by billet, organization, and date of initial interview. No names are included.

Additional information was collected through informal collaboration from Marines and civilians within HQMC, Marine Corps Combat Development Command (MCCDC), Marine Corps Systems Command (MARCORSYSCOM), and the Naval Postgraduate School.

Funding for thesis research travel to Quantico, Virginia was provided by MARCORSYSCOM.

D. THESIS OUTLINE

This thesis consists of five chapters. Chapter II provides the historical background of the Combat Development System (CDS), process improvement efforts within the U.S. Marine Corps, and the organizations within the CDS. Chapter III includes a discussion of the change management

procedures used by senior leadership within the U.S. Marine Corps to prepare Marines and civilians for the CDS. Because of the major paradigm shift from "warrior" to "business man", this chapter also discusses many of the problems encountered by senior leadership in implementing the CDS as well as recommendations for ways to counter that resistance. Chapter IV discusses the role of information management in the CDS. Beginning with the role the Marine Corps Chief Information Officer (CIO), the chapter includes the CIO's information management strategy for the future, the role of that strategy in the CDS, and concludes with a discussion of IT systems that directly support the CDS. Lastly, Chapter V provides a summary, the author's conclusions, and also the author's recommendations for improving the CDS.

E. EXPECTED BENEFITS OF THIS THESIS

This thesis provides change management recommendations that could be utilized by senior leadership within the Marine Corps to gain wider acceptance for the CDS. Additionally, this thesis includes a recommendation involving the use of metrics to measure organizational success. Quantifiable performance measures would help leaders and managers set goals and reward employees. Lastly, this thesis includes a discussion on steps that

could be taken by senior leadership within the CDS to better utilize existing IT systems supporting the CDS.

II. THE MARINE CORPS' BUSINESS ENTERPRISE

> The Marine Corps shall be organized, trained, and equipped to provide Fleet Marine Forces of combined arms, together with supporting air components, for service with the fleet in the seizure or defense of advanced naval bases and the conduct of such land operations as may be essential to the prosecution of a naval campaign. In addition, the Marine Corps....shall perform such duties as the President may direct. [Ref. 9, 12]

The role of the Marine Corps has remained relatively unchanged since its inception in 1775. Since the end of the "Cold War," the role of the U.S. Marine Corps has remained consistent by focusing on its primary mission (above) while simultaneously remaining grounded in history and tradition. Additionally, as articulated by the 82nd Congress, the mission of the U.S. Marine Corps (USMC) also includes preparation for the 21st century by identifying technologies and capabilities required to achieve "combat success on the conflicts and rapidly moving battlefield of the future." [Ref. 9, 13]

A. METHODOLOGY

Information for this chapter comes principally from written documentation. The main source document for the facts surrounding the Combat Development System (CDS) is Marine Corps Order P3900.15A, *Marine Corps Combat*

Development System. A second source of factual information related to the CDS was a report provided to the Marine Corps by SRA International in December 1996. The purpose of this chapter is to describe the CDS. Evaluation of the CDS is done in a subsequent chapter.

B. BACKGROUND

Shortly after the end of the war in southwest Asia, senior leaders in the Marine Corps recognized that future defense resources would be greatly reduced while operational missions would greatly increase in number and complexity. This realization coincided with the decision by the Secretary of Defense (SecDef) that process improvement, an effective cost reduction practice used in the civilian sector, could be utilized within the Department of Defense. Recognizing this initiative as an opportunity to achieve an increase in the overall efficiency of HQMC and an opportunity for funding, the Commandant of the Marine Corps (CMC) agreed to a process improvement study within the Marine Corps. [Ref. 1, 1-9]

Originally started in 1991, the study focused on the identification and streamlining of the business processes utilized by Headquarters Marine Corps (HQMC) to support the Fleet Marine Force (FMF). Originally titled the "Combat

Development Process (CDP)," the study envisioned a single integrated process that could be utilized to produce combat ready Marines. [Ref. 2, 1-2]

Despite the fact that the CDP was adopted by the Marines as Marine Corps Order P3900.15, many issues still remained about both its effectiveness and legitimacy. Leaders throughout the Marine Corps did not understand "process improvement," did not understand the CDP, and consequently did not feel compelled to change their business practices. [Ref. 2, 1-2]

Recognizing numerous flaws and the need for improvement of the CDP, CMC directed another study be conducted into the CDP with the original goal of establishing a data base system for tracking items in the combat development process. [Ref. 2, 1-4] This study turned into a business process reengineering (BPR) effort that lasted almost two years.

The results of the study included both the "AS-IS" and "TO-BE" models of the Marine Corps and were briefed to the Marine Corps' Executive Steering Group (ESG). The results of the study noted three significant findings: (1) the single "process" identified by the CDP included almost the entire Marine Corps, (2) implementation of the CDP could not happen without both the understanding and

institutionalization of process management within the Marine Corps, and (3) the model needed further definition and clarification as the Marine Corps' Enterprise Model. [Ref. 1, 1-4,5]

C. MARINE CORPS CONTINUOUS PROCESS IMPROVEMENT PROGRAM

After receiving the results of the BPR study, the ESG implemented the Functional Process Improvement Initiative (FPII) to "establish and institute continuous process improvement (CPI) within the Marine Corps." [Ref. 1, 1-5] The FPII was soon renamed the Marine Corps Continuous Process Improvement Program (MCCPIP) to reflect the evolutionary and continuous nature of process improvement. The specific goals of the MCCPIP were fourfold: (1) define an integrated process for the overall Marine Corps, (2) identify and analyze critical resource decision making processes, (3) integrate ongoing MCCPIP efforts, and (4) establish methodologies and structure to support CPI. [Ref. 1, 1-5]

1. Enterprise Modeling

The MCCPIP ESG's first priority was to start with the modeling of the current business processes within the Marine Corps. Separating the business portion of the Marine Corps from its operational side, the ESG identified the key

support establishment stakeholder's as HQMC, Marine Corps Combat Development Command (MCCDC), and Marine Corps Systems Command (MARCORSYSCOM) which falls under the Marine Corps Material Command (MARCORMATCOM). Figure 1 represents the MCCPIP's findings reflected as the level 0 "AS-IS" model.

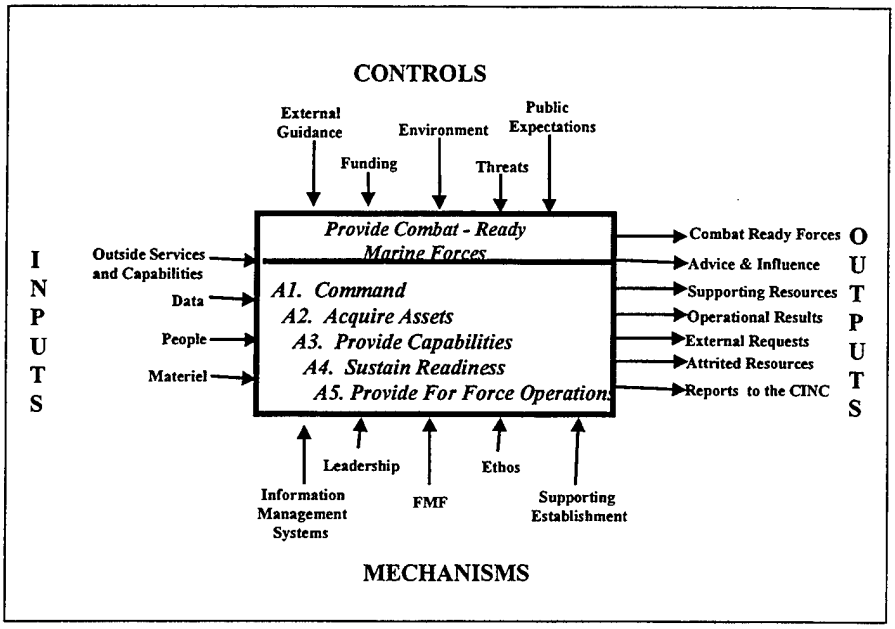


Figure 1. Marine Corps "AS-IS" Model [Ref 11, 12]

Utilizing Integrated Definition for Information Modeling (IDEF), the MCCPIP analysis of the Marine Corps Enterprise Model reflects five core activities: (A1) Command, (A2) Acquire Assets, (A3) Provide Capabilities, (A4) Sustain Readiness, and (A5) Provide for Force Operations. These core activities represent what is known as the "Marine Corps Enterprise (MCE)." [Ref. 1, 1-5]

The model reflects the Input, Control, Output, and Mechanisms (ICOM) that are associated with the MCE. Inputs, such as information and resources from outside the Marine Corps, are transformed and consumed by the MCE to produce outputs. Controls, such as external guidance and funding, specify the conditions required for the MCE to produce the desired outputs. Outputs, such as combat ready forces, are the desired results of the MCE. Lastly, mechanisms, such as Leadership and Information Management System, are those attributes that support the MCE's goal of producing outputs. [Ref. 24, 8]

In order to better serve the operating forces, the MCCPIP concentrated its efforts exclusively on activities A1 through A4, now known as the "Marine Corps Business Enterprise (MCBE)," or those activities dedicated to the support of the operational forces. MCCPIP identified eight processes that sum up the core mission of the MCBE (man, train, and equip Marines). These processes are: (1) Resource Allocation, (2) Information Management, (3) Infrastructure Management, (4) Total Force Structure, (5) Human Resource Development, (6) Material Lifecycle Management, (7) Service Advocacy, and (8) Concept Based Requirements. [Ref. 2, 1-1]

2. Focus

Focused on improving the eight core business processes of the MCBE, the MCCPIP Steering Group established a set of objectives: (1) Define the Business Enterprise in process terms from the Commandants perspective, (2) Help prepare the Marine Corps for the 21st Century by streamlining selected Enterprise processes, (3) Conduct and integrate a series of process improvement projects required to enhance performance, (4) Earn the support of Marine Corps leaders at all levels by incorporating their guidance and recommendations for process improvement, and by involving senior leaders in the endeavors of the working groups and MCCPIP Steering Group, (5) Develop, obtain approval, and implement approved process changes, and (6) Establish process management and continuous process improvement as a permanent way of managing work. [Ref. 11, 6]

To implement these objectives, the MCCPIP team structured itself similar to many management teams. The structure is a building block of teams, each one senior in grade and experience to the one immediately below it. Groups at each level are made up of individuals (Marines and civilians) from throughout the MCBE. This concept is designed to ensure both unity of effort and ownership.

As shown in Figure 2, the MCCPIP structure's foundation is built by educating and training Marines throughout the Marine Corps. On top of that foundation are the Process Improvement Teams who perform analysis and documentation

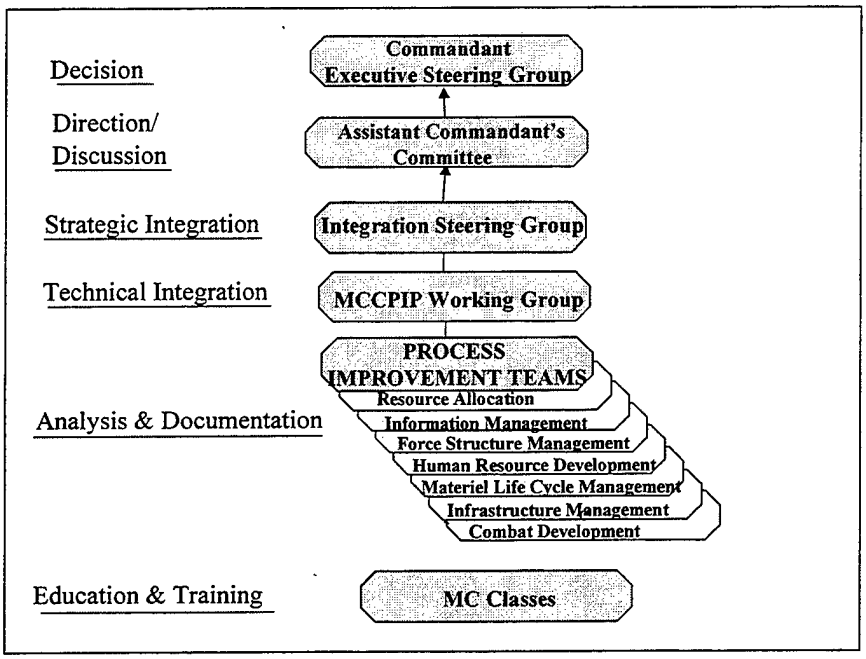


Figure 2. MCCPIP Structure [Ref. 11, 4]

within their respective process. The Working Group integrates results from the Process Improvement Teams and makes recommendations to the Steering Group based on technical experience, functional expertise, and received information. The Steering Group performs strategic integration and recommends to the Assistant Commandant of the Marine Corps (ACMC) what process improvement should be

undertaken. A decision is then made by CMC after input from the ACMC's committee.

3. Findings

MCCPIP identified that agencies involved in the MCBE (HQMC, MCCDC, MARCORSYSCOM) had overlaps in effort and manning. Survey results revealed that the Deputy Chiefs of Staff (DC/S) within the MCBE felt responsible for many of the same activities. [Ref. 1, 3-1] Figure 3 identifies the agencies along with their assumed responsibilities.

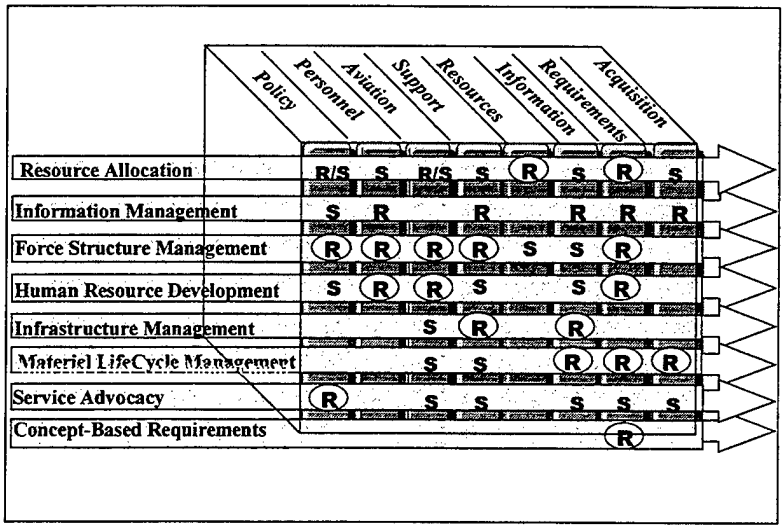


Figure 3. MCBE DC/S Survey Results [Ref. 1, 3-1]

A circled "R" in the diagram reflects that the DC/S for a particular functional area (located across the top) felt he had ownership of the process (located along the left side). An "R" reflects that the DC/S had some

responsibility, but not ownership. The "R/S" reflects some responsibility and some support, where an "S" by itself reflects only limited support. Areas in which the DC/Ss felt they had no responsibility or support were left blank.

The "radiator" exemplifies many of the redundancy issues already discussed. For example, most DC/Ss felt they were owners of the Force Structure Process. Management by multiple ownership is neither efficient nor effective. [Ref. 1, 3-1] Force structure for each element of the Marine Air Ground Task Force (MAGTF), Ground Combat Element (GCE), Air Combat Element, Combat Service Support Element (CSSE), and Command Element (CE) was handled by different sponsors in HQMC.

Consequently, changes in the GCE structure were made without consideration for the overall Marine Corps' structure. Force structure changes made by one sponsor were not coordinated or staffed with other sponsors, which prevented the efficient use of force structure savings. Further problems arose when equipment was added within one element of the MAGTF and the requisite maintenance personnel in another element of the MAGTF were not added because the force structure changes were not staffed. [Ref. 22]

A later study, not suprisingly, reported agencies within the MCBE spent 90% of their resources on internal

negotiations. [Ref. 11, 2] The author's belief is that individuals within the agencies that comprise the MCBE spent little time coordinating with one another, and instead tried to resolve enterprise wide problems to the benefit of the individual organization.

D. OVERVIEW OF THE COMBAT DEVELOPMENT SYSTEM

Having identified the MCBE, the eight core processes within the MCBE, and confusion among the functional DC/Ss, the MCPIP Steering Group made the following recommendations: (1) adopt process management as the new MCBE framework, (2) establish single ownership for each of the eight major business processes, and (3) establish and appoint a Chief Information Officer (CIO). [Ref. 1, 3-2] CMC agreed with the recommendations and changed the official title of the CDP to the CDS on 2 August 1996. [Ref. 1, 1-9]

A system was now officially in place to support the operating forces, had single process ownership, and most importantly, was functionally integrated.

1. "Galactic Radiator"

As shown in Figure 4, the CDS is designed around the core business processes and functional areas of the Marine Corps. The functional areas include: (1) requirements,

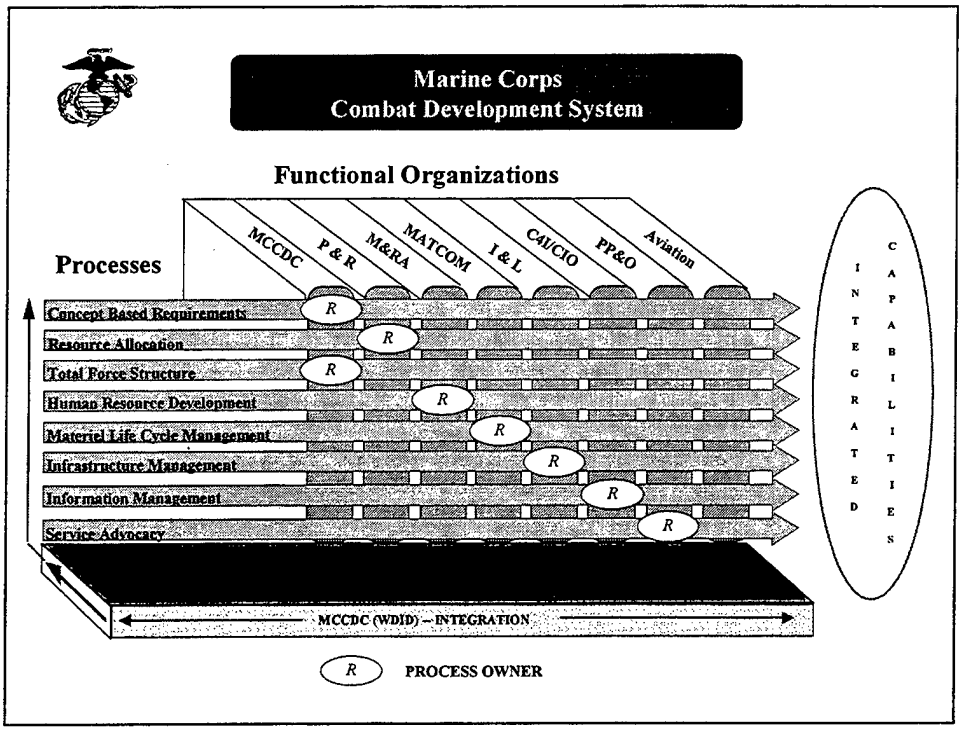


Figure 4. Combat Development System [Ref. 2, 1-1]

(2) force structure, (3) resource management, (4) personnel, (5) material support, (6) facilities support, (7) information systems, (8) service advocacy, and (9) aviation. Each functional area (across the top), except aviation, has process ownership of a single process (along the side). The circled "R" identifies the process owner. Across the bottom of the diagram is the system integrator, Warfighting Development Integration Department (WDID) within MCCDC.

2. System

The CDS has three distinct phases: Concept Based Requirements System (CBRS), Solution Development System (SDS), and Capability Sustainment System (CSS). The CBRS represents the input to the CDS, SDS represents the doctrine, organization, training and education, equipment, and support (DOTES) process, and lastly, CSS represents the output: an integrated capability. [Ref. 1, 3-3] As shown in Figure 5, the CDS contains various methods for input and

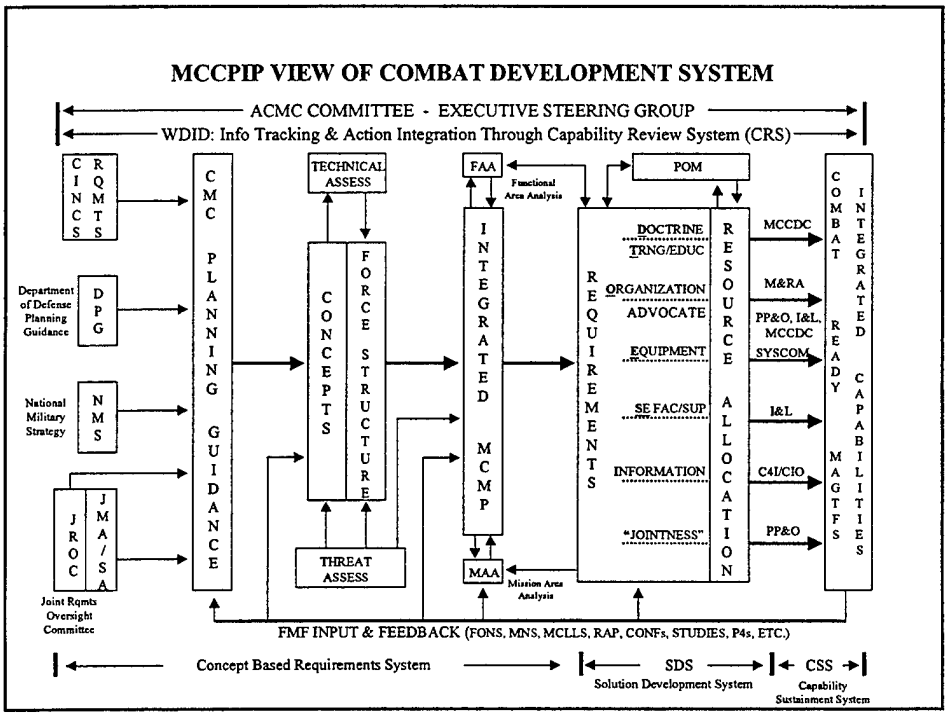


Figure 5: MCCPIP View of the CDS [Ref. 1, 1-8]

feedback from the FMF such as: Fleet Operational Need Statements (FONS) detailing perceived capability

requirements, Mission Need Statements (MNS) identifying operational capability needs, Marine Corps Lessons Learned System (MCCLS) which includes lessons learned from previous exercises or initiatives, conferences, studies, and "Personal For" (P4) correspondence between senior officers.

a. Concept Based Requirements Phase

The CBRS phase begins with guidance given to CMC by various sources. The Unified Combatant Commander in Chief (CINC), Department of the Defense Planning Guidance (DPG), National Military Strategy (NMS), and Joint Requirements Oversight Council (JROC) all provide information to CMC to help shape his vision for the future of the Marine Corps. His vision is published in the Commandant's Planning Guidance (CPG) shortly after assuming command. Using both technical assessments and threat assessments, MCCDC begins to develop capability concepts and force structure designed to support the vision articulated by the CPG. Tying together MCCDC's efforts with functional area assessments (FAA) and mission area analysis (MAA), a strategy designed to implement the CPG is developed. This integrated strategy, known as the Marine Corps Master Plan (MCMP) includes 36 Required Operational and Support Capabilities (ROCs) which form the basis for how the Marine

Corps will allocate its resources. [Ref. 11, 8] Phase two, the SDS, begins upon completion of the MCMP.

b. Solution Development System Phase

Identifying capability requirements based upon the MCMP and other sources is the beginning of the SDS. To ensure integration, these requirements are subject to a review of DOTES. Scrutiny of the requirements ensures that the fundamental needs of the operating forces are met. The requirements are subsequently prioritized and submitted to compete for Program Objective Memorandum (POM) funding.

c. Capability Sustainment System Phase

Lastly, the CSS phase continues the efforts of the DOTES process as well as the development, fielding, and support of the equipment designed to provide the required capability.

E. COMPOSITION OF THE COMBAT DEVELOPMENT SYSTEM

The CDS is composed of eight processes. Although all of the processes are vital and necessary, the first three processes, Concept Based Requirements (CBR), Resource Allocation (RA), and Total Force Structure (TFS) collectively "set the course for capability development in

the Marine Corps" [Ref. 2, 1-4] by providing inputs for the remaining processes.

1. Concept Based Requirements (CBR) Process

The primary process for developing concepts and identifying operational requirements is CBR. As the foundation for CDS, CBR focuses on "what" instead of "how." Included in CBR are concept development, concept based experimentation, mission area analysis, formal studies, and requirements generation. [Ref. 2, 1-2] Owned by the CG, MCCDC, CBR receives input from both internal and external sources as shown in Figure 6.

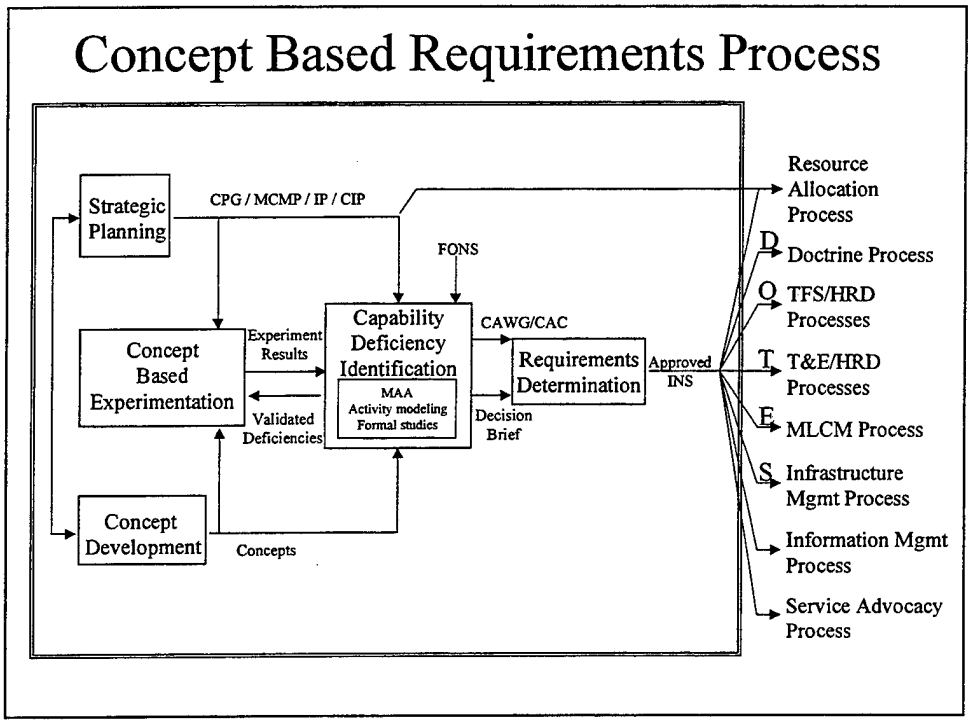


Figure 6. Concept Based Requirements Process

The five subprocesses of CBR, Strategic Planning, Concept Based Experimentation, Concept Development, Capability Deficiency Identification, and Requirements Determination, all work together to identify in concept how the Marine Corps envisions operating in the future.

a. Strategic Planning

Providing the direction for future capability development in the Marine Corps is the principle purpose of Strategic Planning. Utilizing the CPG and MCMP as its two principle planning documents, as well as joint and naval strategic planning guidance, the Strategic Planning subprocess provides critical guidance for how the Marine Corps will implement concepts identified within the CBR.

b. Concept Development

Concepts are statements that broadly describe desired future capabilities without describing specifically how the capabilities will be achieved. [Ref. 2, C-1] Utilizing new ideas from organizations such as the Office of Science and Innovation (OSI), MAGTF Staff Training Program (MSTP), and joint and service agencies, concepts are developed that may improve operating techniques or technology.

c. Concept Based Experimentation

Utilizing input from Strategic Planning, Concept Development, deficiencies from Capability Deficiency Identification, and external guidance, operational experiments designed to determine the military utility, operational effectiveness, and suitability of advanced warfighting concepts are tested. [Ref. 2, 2-2] As the agent for experimentation, the Marine Corps Warfighting Lab (MCWL) conducts realistic experiments that test emerging technologies to determine their applicability for future Marine Corps use.

d. Capability Deficiency Identification

Concepts that are identified through Strategic Planning, Concept Based Experimentation, Concept Development, or FONS are analyzed to determine the capabilities necessary for execution. [Ref. 2, 2-2] Analysis of the concepts is performed through MAA, activity modeling, or formal studies. Analysis of a proposed concept helps to determine deficiencies within the FMF or supporting establishment. These deficiencies are then examined for their impact on DOTES to determine the best solution to the deficiency.

e. Requirements Determination

Capability requirements are reviewed initially by the Capability Assessment Working Group (CAWG). The CAWG, composed principally of Captains and Majors, conducts staff coordination, analysis, and an assessment of the submitted deficiency. Their recommendations are forwarded to the Capability Assessment Council (CAC), composed principally of Colonels and chaired by the Deputy CG, MCCDC. The CAC's purpose is to review and validate identified deficiencies and future requirements to determine the best allocation of resources (people, time, and money). [Ref 2, 2-3] Before arriving at any potential solution to a deficiency, the CAC considers all policy, experimentation, and impact across DOTES. Solutions to deficiencies can either be material (such as new technology), or the preferred choice, non-material. Non-material solutions may include changes such as modifications of Tactics, Techniques, or Procedures (TTP)

The CAC may take one of three approaches to identified deficiency solutions: discard, direct an organization within the CDS to take the deficiency for action, or document the proposed solution in an Integrated Need Statement (INS). An INS directs action necessary within DOTES to resolve the capability deficiency. [Ref. 2, 2-3]

2. Resource Allocation (RA) Process

As the "keeper of the purse" for the CDS, analysts within the RA process require the ability to forecast both short range (two years) and long range (six years) requirements. Owned by DC/S, Programs and Resources (P&R), the RA process has two subprocesses: Resource Allocation Plan Development and Midrange Plan Development.

a. Resource Allocation Plan Development

The Marine Corps budget covers a two year period and outlines mission essential programs existing within the Marine Corps. In simple terms, the budget matches programs within the Marine Corps to funds allocated to the Marine Corps from the Department of the Navy. The budget provides senior leadership within the Marine Corps the ability to justify and support the expenditure of funds. As expected, requirements identified by the CBR must be budgeted for prior to any further action being taken.

b. Midrange Plan Development

In addition to providing short range specific proof and justification for the expenditure of funds, the Marine Corps must also maintain the ability for long term planning. The Midrange Plan Development subprocess is part

of the Marine Corp's input to the DON Program Objectives Memorandum (POM). The POM outlines resource allocations that CMC has undertaken to meet requirements levied by the Secretary of Defense in his Defense Planning Guidance (DPG). The POM depicts a six year future plan that reflects the plans, priorities, and programs of Marine Corps' leadership. [Ref. 2, 2-5,6]

3. Total Force Structure (TFS) Process

The question, "is the Marine Corps organized properly?" is one that is posed and answered constantly by the TFS branch within WDID. [Ref. 1, 3-10] The mission of TFS is to "provide an optimal force structure for the Marine Corps through the effective integration of decision making pertaining to active, reserve, and civilian billet requirements and equipment allowances." [Ref. 7, 1] This determination is made by identifying, developing, and publishing organizational requirements for the Marine Corps. The requirements published by TFS include the number of billets, skills, and equipment allowances necessary for Marine Corps units to accomplish their assigned mission. [Ref. 2, 2-7]

The TFS process is composed of two subprocesses: Develop Organizational Missions and Structure, and Allocate Manpower and Equipment Resources.

a. Develop Organizational Missions and Structure

To develop the mission and structure of units within the Marine Corps, the TFS process starts by performing functional and unit based requirements determination and validation. This involves a review of the existing Table of Organization and Equipment (T/O&E) in concert with any recommended changes. Recommendations for change to either billets or equipment come through multiple channels: Marine Corps concepts, doctrine, new technology or equipment, MCCLS, FONS, MAAs, DoD direction, Operating Forces or Supporting Establishment requests, surveys, and interaction with other process owners.

New requirements can lead to a changed organization's mission. To support the new mission, the Director of TFS consults with other process owners, Occupational Field Managers, subject matter experts (SME), Military Occupational Specialty (MOS) specialists, and billet coordinators. The results of this subprocess are a proposed T/O&E for each unit within the Marine Corps. The

T/O&E is approved when signed by the CG, MCCDC. [Ref. 2, 2-8]

b. Allocate Manpower and Equipment Resources

Once force structure changes are approved by CG, MCCDC, those changes are incorporated into the Total Force Troop List. Many units within the Marine Corps will not be manned at 100%, therefore the Total Force Troop List is used to identify the number of billets (officer and enlisted) to be manned. The Total Force Troop List is also approved by CG, MCCDC. Possible outputs from this subprocess include the Marine Corps Bulletin (MCBul) 5400 to provide implementation details and the Authorized Strength Report.

To perform the TFS process, input from other process owners within the CDS is required. Most organizational changes will come from the CBR process in the form of a capability requirement, but changes may also occur based on input from the Human Resource Development process and Material Lifecycle Management Process.

Additionally, many changes may arise from DOTES assessments staffed through TFS. Any changes to doctrine (D), training and education (T), equipment (E), and support and facilities (S) will affect the structure of the organization (the "O" in DOTES). [Ref. 2, 2-8]

4. Human Resource Development (HRD) Process

The HRD process owner is the DC/S, Manpower and Reserve Affairs (M&RA) under Headquarters Marine Corps. The purpose of the HRD process is to "appropriately staff Marine Corps Organizations (MOS/rank) while assisting" [Ref. 2, 1-3] to the personal needs of the individual Marine. This process relies upon input from the individuals using the TFS process in the form of the Authorized Strength Report (ASR), and also training requirements identified by the CBR process.

In addition to the primary purpose of the HRD process, other responsibilities are grouped together within the HRD process such as personnel inventory, planning, accession, classification, training, assignment, promotion, separation, and retirement of all active, reserve, and civilian manpower resources. [Ref. 2, 1-3] Lastly, CG, M&RA, as the HRD process owner, also manages the Marine Corps Quality of Life program.

The HRD is composed of seven different subprocesses designed to work together to produce properly staffed organizations for the U.S. Marine Corps. These subprocesses include: Develop Plans, Access, Classify, Train and Educate, Assign, Promote, and Attrite. Unless otherwise specified, all subprocesses belong to DC/S, M&RA.

a. Develop Plans

As stated, the Develop Plans subprocess is designed to produce plans for Manpower and Training using concept based requirements and doctrine as input and form the cornerstone of the HRD process. All HRD plans are governed by the amount of available resources and allocations mandated by Congress and the Department of Defense. In order for the CDS to function properly, its plans must be achievable, stable, flexible within the stated parameters, and capable of interfacing with the other subprocesses of the HRD process. {Ref. 2, 2-10]

b. Access

In simple terms, Access is recruitment. The subprocess owner is the Commanding General, Marine Corps Recruiting Command. As such. it is the organization's responsibility to produce the number and types of both Marines (active and reserve) and civilians as required by the Marine Corps.

c. Classify

Before individuals are recruited into the Marine Corps, the Classify subprocess stipulates "the numbers and types of Marines [and civilians] to be recruited for

classification". [Ref. 2, 2-10] Follow on training qualifications are also established within this subprocess.

d. Train and Educate

Once the Marine Corps establishes recruiting standards and Marines are recruited, the Training and Education subprocess follows through with the training and education of those Marines. This subprocess ensures that both training and pipeline requirements are fully integrated so vacancies in FMF are adequately filled with appropriate MOSs. Further, the Train and Educate subprocess defines each MOS within the MOS structure by specifying the requisite tasks to be performed. This responsibility links the TFS process with the capabilities of the HRD process. Train and Educate falls under the CG, MCCDC.

e. Assign

Assigning the proper individual to the proper job is the purpose of the Assign subprocess. By far the most visible portion of the HRD process, Assign ensures that Marines or civilians with the correct grade, experience, and MOS (skills) fill the requisite billet.

f. Promote

By ensuring that proper individuals get promoted, or by default, do not get promoted, the Promote subprocess provides the Marine Corps with a force that consists of the correct mix of grade and experience. Promote is directly linked to the last subprocess, Attrite, and requires close coordination with both DON and DOD to ensure policy adherence. [Ref.2, 2-11]

g. Attrite

The last subprocess under the HRD process, Attrite helps provide the Marine Corps with a properly grade-shaped force (rank, experience, skill) by the attrition (retirement, discharge, or release) of both Marines and civilians.

5. Materiel Life Cycle Management (MLCM) Process

The MLCM process represents a "cradle to grave" mentality used with the development of ground common weapons systems, equipment, and information systems. Equipment solutions provided by the MLCM process are identified from the MNSs and Operational Requirements Documents (ORD) from the CBR process and also Acquisition Objectives from the TFS

process. Because both the CBR and TFS processes belong to MCCDC, the MLCM process relies heavily upon MCCDC for input.

While the MLCM process owner is MARCOMMATCOM, the actual implementation of the process falls under MARCOMSYSCOM, a subordinate organization. The two organizations are geographically separated: MARCOMMATCOM in Albany, Georgia, and MARCOMSYSCOM in Quantico, Virginia.

Broken down into four subprocesses, MLCM is composed of: Acquire Assets, Field Combat Systems, Maintain Supply and Combat Equipment Readiness, and Phase Out Obsolete Items.

a. Acquire Assets

Owned by COMARCORSYSCOM, this subprocess represents the "cradle" portion of the MLCM process. The Acquire Assets subprocess includes the development and procurement of end items (equipment) and support material and services. The subprocess begins with the requirements process and input from individuals within WDID and the appropriation of funds from the analysts within the RA process. Once underway, the Acquire Assets subprocess includes an initial study to determine any existing alternative solutions, a concepts and system design study,

and results in a signature from the Commander to move ahead in the process.

b. Field Combat Equipment

Field Combat Equipment is also owned by COMMARCORSYSCOM and includes the actual packaging and shipment of equipment. This also includes all of the associated spare parts, tools, training, technical manuals, and other necessary support to "provide and sustain a complete capability." [Ref. 2, 2-12]

c. Maintain Supply and Combat Equipment Readiness

Owned by the CG of the other subordinate unit under MARCORMATCOM, Marine Corps Logistics Bases (MARCORLOGBASES), this subprocess includes depot level support for the operating forces. Depot level support includes supply management, technical support, and maintenance capabilities beyond that of the FMF.

d. Phase Out Obsolete Items

Also owned by CG, MARCORLOGBASES, Phase Out Obsolete Items represents the "grave" portion of the MLCM process. Included under this subprocess are the measures necessary (administrative and mechanical) to transfer

nonfunctional or obsolete equipment from the operating forces to final disposition. [Ref. 2, 2-13]

6. Infrastructure Management Process

As it suggests, Infrastructure Management includes the identification, planning, implementation, and support for facilities requirements for the Marine Corps' operating and garrison forces. As part of the CDS, the Infrastructure Management Process responds initially to support and facility requirements identified through CBR.

Specifically, Infrastructure Management is concerned with the Marine Corps' land, airspace, facilities, garrison equipment, and base support services needed by military and civilian personnel. Owned by DC/S, Installations and Logistics (I&L), the Infrastructure Management process has four subprocesses: Oversee Infrastructure Planning and Design, Monitor Infrastructure Construction, Acquire/Divest Infrastructure, and Maintain and Protect Infrastructure. [Ref. 2, 2-14]

a. Oversee Infrastructure Planning and Design

As concepts are identified through the CBR process, new facilities requirements will be handled using this subprocess. As operation and training requirements change, individuals using the Infrastructure Management

process will support that change by combining physical requirements, existing plans, legal and regulatory issues, and budgets to establish the infrastructure planning guidance.

b. Monitor Infrastructure Construction

Once construction programs are established, periodical reviews of the construction schedule to validate the requirements and priority of the program are performed. Any planned facilities issues requiring resolution will be handled in this subprocess.

c. Acquire/Divest Infrastructure

The real estate portion of Infrastructure Management, this subprocess includes the purchase, rental, lease, or other means of acquiring infrastructure according to guidance specified in the previous two subprocesses. This subprocess will also include the divestiture of excess or unnecessary infrastructure.

d. Maintain and Protect Infrastructure.

Once established, the maintenance and protection of infrastructure is accomplished through various methods. Land and airspace management supports the warfighter through maintenance, preservation, and development of training

areas, protection from encroachment, and community services. To ensure the warfighter has adequate functional facilities, buildings are continuously maintained or attrited. Because facilities management includes machinery necessary to operate and maintain a military installation, maintenance or disposal of equipment is also necessary.

The Infrastructure Management process receives input from each process within the CDS and provides input back to each process through infrastructure information or feedback on their proposals.

7. Information Management Process

Planning, implementing, and sustaining the information management capabilities necessary to enhance decision making and integrated actions throughout the Marine Corps is the mission of the Information Management Process. [Ref. 1, 2-16] The Chief Information Officer (CIO), who is also the Assistant Chief of Staff (AC/S), Command, Control, Communications, Computers, and Intelligence (C4I), is the process owner. As such, the CIO uses the Information Management process to provide input to the CDS by establishing information management (IM) plans, policies, standards, and architecture to ensure the proper mix of IM people and technologies throughout the Marine Corps.

Achieving the desired goal of the Information Management process is accomplished through three subprocesses: (1) Develop IT/IM Plans, (2) Create IT/IM Capabilities, and (3) Sustain IT/IM Capabilities.

a. Develop IT/IM Plans

Using the Joint Technical Architecture (JTA) as a baseline, strategic IT/IM plans for the Marine Corps are produced through this subprocess. These plans provide IT/IM planners throughout the Marine Corps with the information necessary to establish guidance, make decisions, plan architectures for the future, and establish measurements of performance.

b. Create IT/IM Capabilities

By utilizing the plans established in the previous subprocess, the CIO will provide the method for integrating IT/IM capabilities throughout the Marine Corps.

c. Sustain IT/IM capabilities

Preventing the Marine Corps from losing relevant IT/IM capabilities is the mission of this subprocess. This is accomplished through three distinct methods: (1) maintenance and support of IT/IM infrastructures, (2) availability and placement of appropriately trained IT/IM

users and administrators, and (3) sustainment of an accessible knowledge base of information.

8. Service Advocacy (SA) Process

Managed by the DC/S, Plans, Policies, and Operations (PP&O), the Service Advocacy (SA) process is primarily focused externally to the Marine Corps. As the process name suggests, SA involves marketing the capabilities of the Marine Corps to outside agencies which include Joint and CINC staffs, DOD and other government agencies, Congress, and the public. By developing and advocating policy and plans for the task organization of Marine Corps operating forces as well as monitoring their deployment, employment, and sustainment, the individuals using the SA process are able to articulate the current capabilities of the Marine Corps. Through daily interaction with both the Joint and CINC staffs, PP&O staff using the SA process ensure Marine Corps involvement in future operational and contingency plans. [Ref. 2, 2-18]

The SA process is accomplished through the use of four subprocesses: (1) Research, Analysis and Feedback, (2) Prepare the Battlefield, (3) Create Public Support, and (4) Participate in Public Planning.

a. Research, Analysis, and Feedback

By continuously collecting information regarding required capabilities from CINCs, U.S. Marine Corps Force (MARFOR) Commanders, and the Joint Staff, the PP&O staff using the SA process provide the CDS with critical information necessary for the CBR process.

b. Prepare the Battlefield

By educating, marketing, and networking with external agencies, the PP&O staff using the SA process promote the Marine Corps' capabilities amongst Joint and CINC staffs and to secure Marine Corps participation in future military operations. Education of outside agencies is done by utilizing information garnered during the previous process.

c. Create Public Support

Reinforcing the opinion of the Marine Corps' principal external stakeholders, Congress and the public, is the purpose behind this subprocess. By preparing and delivering position papers that promote Marine Corps capabilities and its role in the defense of the United States, the PP&O staff using the SA process influence public

opinion and national level decision making on the use of resources.

d. Participate in Joint Strategic Planning

Daily meetings and communication with Joint and CINC Staffs by PP&O ensure the Marine Corps' involvement in the full spectrum of Joint Strategic Planning. Action officers within PP&O assure the assignment of missions by Marine Corps operating forces in the Joint Strategic Planning System (JSPS), nomination and selection of Marine Corps units to fulfill missions, and staffing and coordination of policy with HQMC and external agencies.

Input to the SA process is principally from the CBRP, which allows the articulation of current and proposed capabilities to external agencies. Outputs from SA are used by all processes by providing "real world" information, which better enables them to help shape the Marine Corps of the future. [Ref 1, 2-18,19]

F. INTEGRATION OF THE COMBAT DEVELOPMENT SYSTEM

Integration of the CDS is the responsibility of the Commanding General (CG), MCCDC. Within MCCDC, the Director, WDID, is tasked with monitoring, coordinating, and influencing the identification, development, and fielding of the right combination of resources which cross process,

function, mission areas, and DOTES domain interests. [Ref. 2, 1-6] Although integration belongs to MCCDC (WDID) at the macro level, each organization with the CDS is responsible for integration of its assigned processes and functional area. The purpose of integration is to ensure that DOTES, other services, and CINC considerations are understood when identifying and developing capabilities for the Marine Corps. If successful, proper integration will lead to a "ready to use" capability that is delivered to the operational forces. [Ref. 2, 1-6]

III. CHANGE ANALYSIS

The U.S. Marine Corps is composed of individuals firmly grounded in the organization's mission, history, traditions, and reputation as the nation's "911" force in readiness. Since its inception in 1775, Marines have had to adapt to numerous changes in technology and tactics but have never changed in their belief that every Marine is a rifleman. If you are not a rifleman by occupation, then you and your organization support the rifleman. Terms such as "Devil Dog" and "Warfighter" are used time and again to instill the "warrior" philosophy in all Marines. Consequently, when a Marine supports operating forces, he/she still thinks of himself/herself as a "warrior."

The CDS is attempting to change many aspects of the Marine Corps Business Enterprise including individual Marine's views of their roles and responsibilities. Changing from functional "stove pipe" thinking to integrated process management makes sense on paper but is proving a more difficult task than originally anticipated. Nevertheless, the goal is to "maintain a combat ethos with operating forces while creating a business culture within the business enterprise." [Ref. 1, 3-26]

In discussing the difficulty in managing changes from the previous method used by the Marine Corps to the CDS, one first needs to understand the rationale behind the change, the method by which change was introduced, and how well change was managed.

A. IS CHANGE NECESSARY?

As noted in the previous chapter, changing the focus of Marines in the MCBE to process management instead of functional organization management was driven first by the Department of Defense and second by General Krulak. Facing declining resources, government mandates for change in business practices, and an annual military leadership turnover of 33%, the Marine Corps was still required to enhance its capabilities, perform its assigned mission, and handle an increasing operational tempo. These factors necessitated a change in the business practices used by the Marine Corps. [Ref. 11, 3]

B. STRATEGY FOR CHANGE

The methodology used by MCCPIP to improve the MCBE follows the Department of Defense's (DOD) *Functional Process Improvement Methodology*, DOD 8020, and DOD publication *Framework for Functional Process*. The methodology set forth in both documents is commonly referred to as Business

Process Reengineering (BPR). Using this methodology, MCCPIP followed the standard BPR steps of (1) defining the current plan and functional baseline, (2) analyzing the current business processes, (3) evaluating alternatives to select a course of action, (4) planning for implementation of the preferred course of action, (5) approval of the course of action by the ESG, and (6) executing the change and establishing a new baseline.

As previously noted, MCCPIP used this methodology to identify the eight core business processes within the MCBE. Once identified, each individual process was targeted for improvement. Recognized as the most visible and significant of the eight processes, the Resource Allocation process (RAP) was chosen first. Improvement of RAP involved specifying performance objectives and identifying process metrics chosen to accurately measure response time. Results from this initial study included an increase in funding as a "result of more rapid and consistent response to inquiries." [Ref. 11, 5]

Combining information gained from the RAP study and the BPR methodology, MCCPIP adopted a revised model for performing studies on each process. This model, known as the Decision Framework Model, was recognized as an 80% solution. As with all BPR models, the Decision Framework

Model is not the "end-all" but is merely a point of departure for use in identifying process improvements. Should changes to the model be necessary, the model will be updated. Shown in Figure 7, the Decision Framework model is

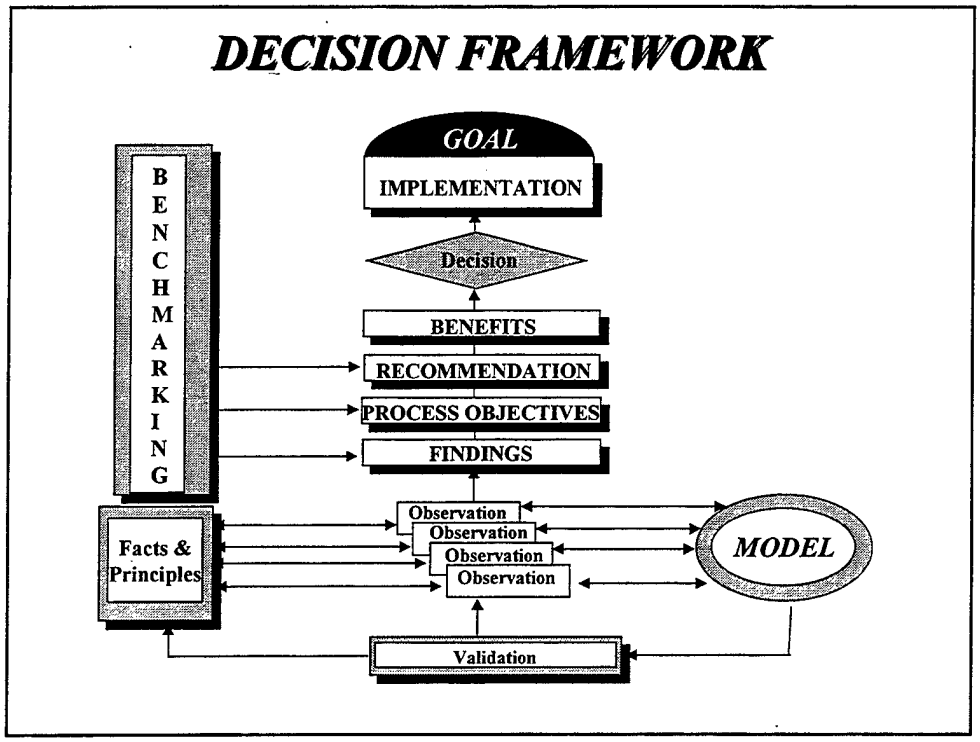


Figure 7. Decision Framework Model [Ref. 11, 5]

the starting point for the review of each process by MCCPIP project teams.

MCCPIP teams make observations regarding the process model by the team by either producing an objective insight (fact) or by validating a subjective opinion making it an objective observation.

One or more observations are then used to create a finding. A combination of two or more findings is then filtered through the performance objectives of the subject process to create recommendations. Benchmarking against both government and private organizations is done on all findings, process objectives, and recommendations to determine performance levels, solicit ideas for achieving those performance levels, and also to "borrow" ideas that worked. A cost benefit analysis is used to determine if the effort level required to introduce the new idea exceeds the actual benefit of using it.

Recommendations and their benefits are briefed to the ESG who approves or disapproves those recommendation(s). If recommendation(s) are approved, the project team then formulates an implementation plan designed to steer the subject process towards its new performance goals. [Ref. 12]

The actual implementation of the process improvements is the next step and is proving to be difficult for some process owners within the MCBE. To date, P&R (RAP) and M&RA (HRD) are the only organizations to have completed their reorganization based on the ESG decision. [Ref. 13]

C. CHANGE MANAGEMENT

Steps one through five of the BPR methodology were performed with the assistance of Systems Research and

Applications (SRA) International, a civilian contractor, hired by the Total Quality Leadership (TQL) Office within the Director, Marine Corps Staff (DMCS). [Ref. 13] A clearly defined baseline was identified and analyzed, alternatives (the "TO BE" model) evaluated, and an implementation plan was developed and approved. The Marine Corps appears to be struggling with the last step: execution.

SRA International recognized that the existing MCBE had well defined traditions and culture, but felt that both traits, if properly shaped, could contribute to achieve maximum utilization of declining resources. They recommended that the Marine Corps effect change by focusing on two areas: publicity and training. Publicity about CDS, upcoming events, and most importantly, successes resulting from the CDS would be promulgated through announcements and articles. The goal of publicity would be to acquaint the Marine Corps as a whole with the CDS and "set the stage" for the transformation of the MCBE. [Ref. 1, 3-26]

Training, which follows publicity, was thought to be the tool by which the CDS would eventually be accepted and embraced as the Marine Corps' new business approach. SRA understood that changes in culture and process would have to be addressed in addition to identifying and providing the

critical skills necessary to implement the CDS. Based on the magnitude of the change, SRA divided training into four areas: (1) strategy, (2) business, (3) leadership, and (4) team tools and skills.

- **Strategy**: training that communicates new Marine Corps strategies and educates participants on the change process.
- **Business**: training that explains and facilitates the reinforcement and integration of new business practices among Corps members.
- **Leadership**: expanding leadership skills and experiences for participants responsible for teams or other individuals.
- **Team Tools and Skills**: specific programs to identify team management coping skills as well as developmental opportunities for process management team members. [Ref. 1, 3-26,27]

Following this plan, SRA claims that the Marine Corps has had some success in its change management.

- Executive seminars have been held and cited
- Recognition that process improvement is sponsored by senior leadership.
- Process management vocabulary is spreading
- Process management teams have stood up
- Business enterprise concepts are being accepted
- Increasing emphasis on customer service
- Change Management Plan has been created: provides overview informational briefings on BPR and process improvement for senior management

- MCCPIP Major Command Briefing Plan created
- Training and orientation modules produced: Process Reengineering Overview, History of MCCPIP, and MCCPIP Process Management
- Draft MCCPIP Office Plan created [Ref. 1, 3-27]

D. CHANGE MANAGEMENT ANALYSIS

Change management professionals agree that changes in an organization's environment (competition, technology, and regulations) may require changes in organizational strategy. If a new strategy is developed, the Enterprise, including its sub-units, may have to perform tasks different from those previously performed. Changing tasks may then result in changes to the informal structure, formal structure, and personnel within the organization. [Ref 10, 492-493]

However sound in principle, the CDS is a significant departure from the Marine Corps' previous method of conducting business. Consequently, implementation of the CDS has met with resistance from many areas. Although a plan was produced, many basic tenants of change management have been overlooked in the implementation of the CDS.

1. Methodology

In addition to literature research, personal interviews were conducted with representatives from each process owning organization, the TQL office, and individuals from the FMF.

Many respondents familiar with the CDS mirrored one another in their views on the strengths and weaknesses of the CDS, as well as the reasons behind its difficulty in being fully implemented. Respondents included individuals from the rank of Colonel (O-6) through Captain (O-3) as well as numerous civilian employees (GS-13/14) of the Marine Corps. The Bibliography reflects those individuals who agreed to let their comments remain "on the record" by naming their billet and organization. If the respondent was uncomfortable with being identified, their comments were included with the billet and organization listed as "anonymous." No respondents requested anonymity.

In performing the analysis, the original change management plan from SRA was reviewed and compared against other change management models. Perceived strengths and weaknesses illuminated by the change models and validated by either literature or interview are discussed and followed by recommendations for improvement.

2. The Ten Commandments of Change

While no change management model will provide a guarantee for complete success, there are basic change guidelines that, if followed, increase the likelihood of success. One such model includes ten areas of inspection

that should be addressed before implementing any change. [Ref. 15, 195]

a. Analyze the Organization and Need for Change

Before implementing change, organizations must first examine all facets of the existing organization to include functions, strengths and weaknesses, and the effects of the proposed changes. Included in this analysis is a study of the organization's history of change including noted areas of resistance. If known areas of resistance do exist, the implementation plan should include methods to remove or mitigate change resistance.

A thorough and exhaustive analysis was performed through the various studies performed on the MCBE. Strengths and weaknesses were noted, a history of change was completed, and any affects created by changes to the MCBE were identified. What is missing is the identification of resistance and the plan to remove those barriers to change. The SRA report briefly noted that both Marine Corps culture and tradition were areas that needed attention, but stopped short of calling either one a barrier to change. Consequently, the Marine Corps did not appear to be prepared for the resistance it received.

Identifying resistance can be done using any one of several well-known change models. Previously discussed

is the idea that any change in task also will cause changes in both the informal and formal organization as well as individuals in the organization. At a minimum, one should expect and plan for those areas of resistance.

In the author's opinion, the best model for illustrating resistance is the McCaskey Model shown in Figure 8. In addition to identifying various components

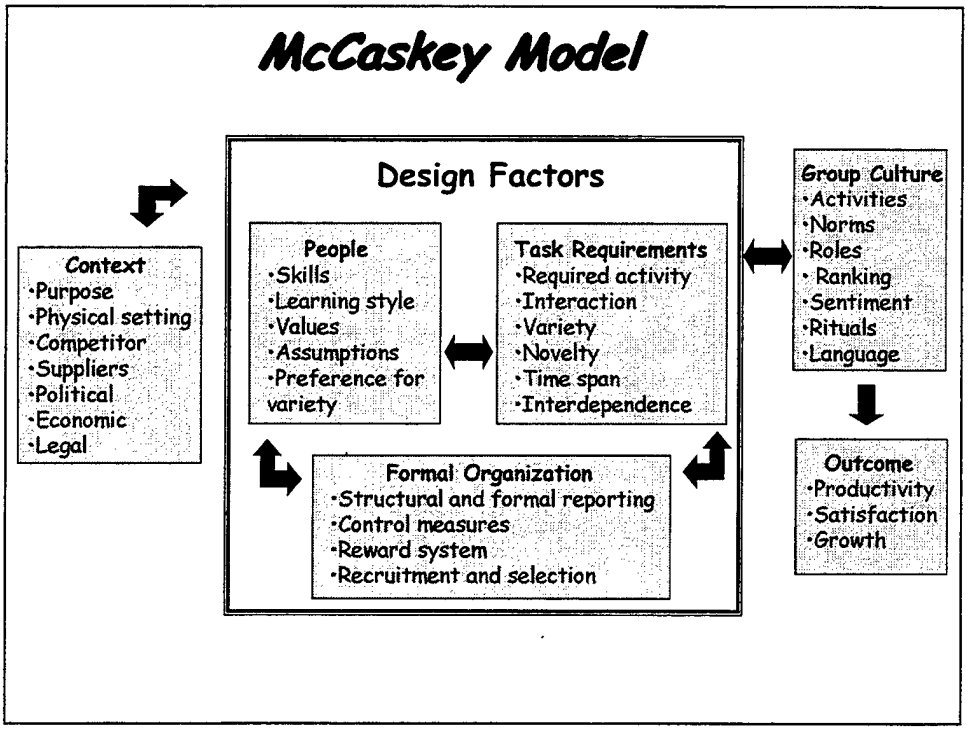


Figure 8. McCaskey Model [Ref 15, 226]

of the organization, McCaskey's model provides insight into potential areas of resistance. The Context, or environment, in which an organization exists includes several variables that will change whether or not the organization changes.

Competition is getting more fierce, suppliers are frequently looking more to private industry for contracts, politicians are much more attentive to waste, and resources are dwindling. To survive, the organization must change.

Driving that requirement for change is a change in the outcome of the MCBE. To better support the FMF, the MCBE must be more productive, provide better satisfaction to the customer, and grow as an organization.

Inside the Design Factors box are subsystems that together accomplish the mission of the organization. Starting with People, one can go down the list and identify areas that will change with the CDS and consequently become potential areas of resistance. New skills, a new learning style, and a preference for variety are all connected. Many individuals thrive on learning new ways of doing work; however, many others are content to perform their work in the same fashion and not change their style of work. Individual assumptions about how one's work, role, and overall value will be affected must be addressed.

Task Requirements will change because the CDS changes the focus from a functional orientation to a process orientation. Tasks that previously were accomplished using standard operating procedures may be changed based on the MCCPIP process study. Consequently, new interactions may

occur, time spans may decrease, and interdependence may develop where once there was no relationship.

The CDS is designed to remove the functional "stovepipe" mentality seemingly possessed by many formal organizations. Because processes cross many organizational boundaries and some sub-processes are managed by organizations outside the process chain of command, many new reporting chains are being established that directly challenge the existing structure. Consequently, control measures to manage both processes and people must also change, as must reward systems based on the CDS.

An example of a formal organizational change is the reorganization of P&R based on the MCCPIP study of their processes. As a result of the study, P&R was increased in size by the addition of comptrollers from another organization and received an additional star to elevate its organizational head to an O-9. Organizational billets and ranks within the Marine Corps are a "zero-sum game," if one organization is increased, another is decreased.

Not adequately reflected in the McCaskey Model is the affect of group culture on the entire process. The model shows that culture impacts the organizational outcome. The Marine Corps appears more influenced by culture than many other organizations. As a result of the change to the

CDS, all of the areas listed under culture are affected. The required change in focus from "warfighter" to "businessman" is perhaps the biggest challenge. Despite the fact that "Marines are not turning in their cammies for business suits" [Ref. 14] there still is resentment stemming from norms, roles, and sentiments based on how Marines see themselves. The CDS requires changes in ritualistic activities, behavior and language.

Each separate area within McCaskey's model has resistance to change and that resistance must be factored into the plan to implement change, or the plan will fail.

Once identified, resistance could have been removed or mitigated by the Marine Corps using numerous methods. Many are common sense and some already have been recommended by SRA.

- Explain change plans fully
- Skillfully present plans
- Make information readily available
- Identify benefits to end user and organization
- Spend extra time talking
- Ask for and incorporate feedback
- Start small and simple
- Arrange for quick and visible payoffs
- Publicize success [Ref. 15, 195]

- Publicize success [Ref. 15, 195]

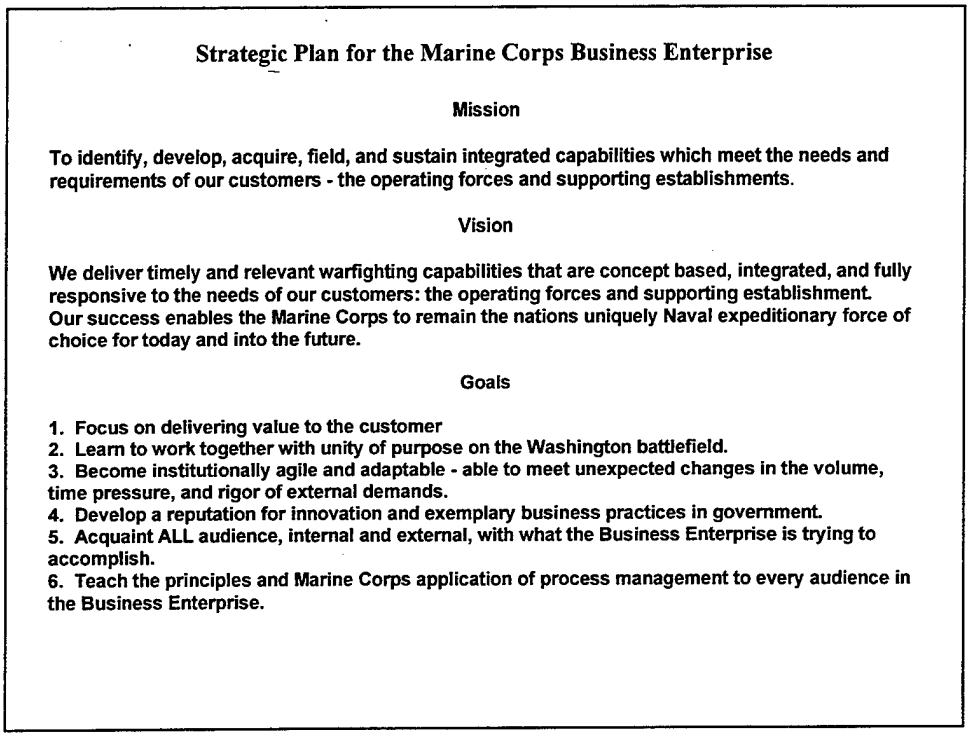
Only two recommendations have readily been implemented: make information available and ask for and incorporate feedback. [Ref. 12, 13, 14, 19, 20, 22] Many individuals within the MCBE are not sure what the CDS actually is, how it operates, what impact it has on their job, and how it may benefit them. [Ref. 14] Although several successes have been recognized by the CDS, nothing has been done to publicize those successes to the rest of the Marine Corps. Small organizational changes that could be accomplished with relative ease have not been attempted, negating several further successes. [Ref 22]

b. Create a Shared Vision and Direction

CMC has been consistent in providing both guidance and vision on how he sees the MCBE functioning. Shortly after becoming CMC, General Krulak published the CPG detailing his vision followed by the MCMP which outlined the steps on how the Marine Corps would realize his vision. The MCMP was followed by an integrated MCMP in 1998, which included 36 Required Operational Capabilities (ROCs) that dictated how the Marine Corps would allocate its resources. The implementation plan attached to the MCMP included the methods by which the MCBE would gain, effectively use, and

optimize the declining resources used to achieve the ROCs. [Ref. 11, 8]

Additionally, after goals one through five of the MCCPIP Steering Group were accomplished, a strategic plan for the MCBE, shown in Figure 9, was designed. Now a subset



Strategic Plan for the Marine Corps Business Enterprise

Mission

To identify, develop, acquire, field, and sustain integrated capabilities which meet the needs and requirements of our customers - the operating forces and supporting establishments.

Vision

We deliver timely and relevant warfighting capabilities that are concept based, integrated, and fully responsive to the needs of our customers: the operating forces and supporting establishment. Our success enables the Marine Corps to remain the nations uniquely Naval expeditionary force of choice for today and into the future.

Goals

1. **Focus on delivering value to the customer**
2. **Learn to work together with unity of purpose on the Washington battlefield.**
3. **Become institutionally agile and adaptable - able to meet unexpected changes in the volume, time pressure, and rigor of external demands.**
4. **Develop a reputation for innovation and exemplary business practices in government.**
5. **Acquaint ALL audience, internal and external, with what the Business Enterprise is trying to accomplish.**
6. **Teach the principles and Marine Corps application of process management to every audience in the Business Enterprise.**

Figure 9. Marine Corps Business Enterprise Strategic Plan

of the MCMP, this strategy clearly articulates the mission, vision, and goals that CMC expects from the MCBE. Although published, this strategic plan is neither well known nor fully understood by individuals within the MCBE or FMF.

c. Separate from the Past

Perhaps the most difficult aspect for any organization, separating from the past, is the most critical if change is to be implemented. Important to note is what must be changed - those old practices that are no longer useful and replaced by with new practices that will help attain the goal set for the organization. [Ref 15, 197]

With that said, this aspect of change is still difficult for some Marines to accept. As discussed, substantial change in an organization will most likely be resisted in one form or another. A key to managing resistance is education. Those individuals affected by the change must understand that not everything is being abandoned. Again, the idea of thinking of oneself as a "businessman" vice "warrior" is abhorrent to many Marines despite the obvious rationale that business practices must be used to economize scarce resources. In the April 1999, *Marine Corps Gazette*, one letter to the editor included a letter from a retired Marine commenting on a statement from another Marine who said, "...we must change our perception that Marine leaders are only warfighters. To be fully successful, we must be business managers as well." The writer's response to the previous comment was "I could almost hear the groans from Valhalla."

Beyond the "businessman" battle are many necessary changes that must take place if the Marine Corps plans to remain competitive with the other military services. Best business practices not already in place must be adopted, process management must replace the "stove pipe" method of work, integration across all functional areas must occur, and the entire MCBE must work as a cohesive team to support its customer - the warfighter.

d. Create a Sense of Urgency

As Commandant, General Krulak established his number one priority as "resourcing the Corps." [Ref. 11, 4] Following the CPG was the MCMP that guided efforts to enhance the MCBE and refine the manner in which the Marine Corps conducts business. There is no doubt that the Marine Corps needs a better method of doing business. The Commandant articulated that point during one speech when he stated, "We cannot afford the Marine Corps we have, nor the Marine Corps we want in the future."

e. Support a Strong Leader Role

Having the organization's Chief Executive Officer (CEO) as the main advocate for change is not a new concept, but he alone can not accomplish the transformation. Such is the case with the CDS. Although CMC was the impetus behind

the initial push, other advocates must be found to support the CDS. Figure 10 reflects how a top down effort is

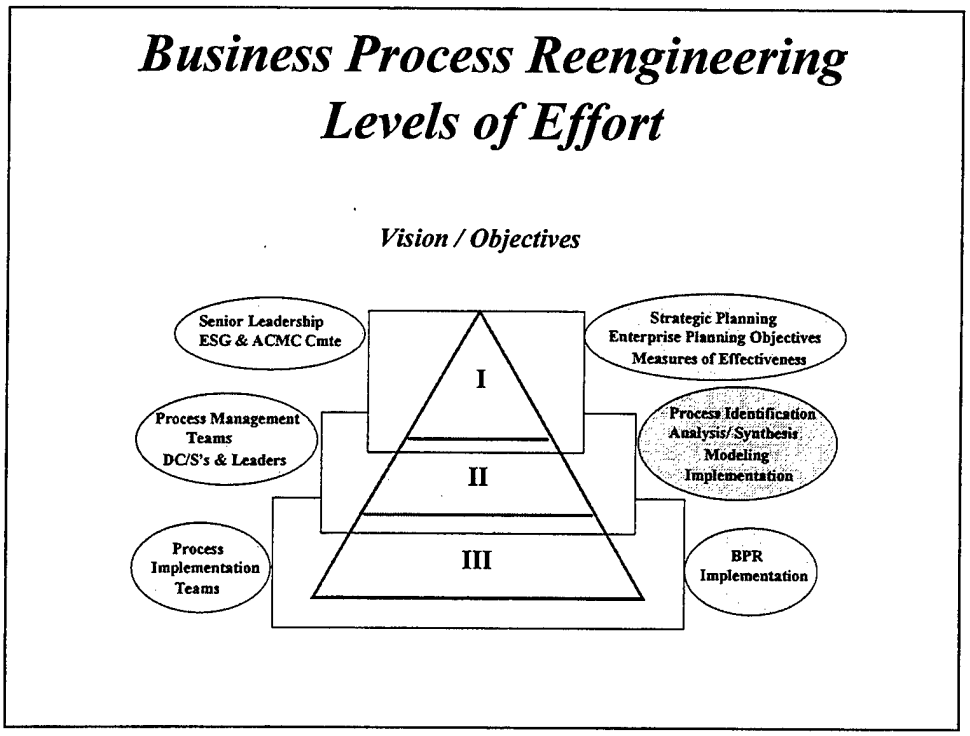


Figure 10. Business Process Reengineering Levels of Effort

relatively easy at the top but increasingly difficult as one moves deeper into the organization. Strong leaders are required at each level of an organization to ensure that the vision is understood and objectives are being met.

Level I is the strategic planning level and includes senior leadership, which comprises the ESG and Assistant Commandant of the Marine Corps (ACMC) committee. At this level, there appears to be complete agreement that the CDS is the direction in which the Marine Corps needs to

travel. However, some argue that although there is positional agreement, such as the Commanding General of an organization, there is no "ownership" of the CDS by that same General when he is no longer in charge of the organization. Consequently, the belief that General officers as a whole do not "buy-into" the CDS is prevalent within the MCBE. [Ref. 13, 14, 20] Imagine the impact that belief has on other senior and junior officers alike, whether or not the perception is true.

Level II comprises the Colonels and Lieutenant Colonels who head most of the sections within the organizations in the MCBE. Many of these individuals have been in the Marine Corps for 20 plus years and have maintained functional organization mindset for all of those years. Doubtless, there are numerous individuals at this level that are "on board" with the CDS, but the battle facing the CDS is overcoming the "businessman" mindset rejected by so many Marines. Additionally, because the perception is alive that there are many General officers who are not embracing the CDS, many Level II leaders are not being forced to learn, understand, and utilize the CDS. [Ref. 13, 20]

Level III comprises the principle workers in the MCBE - the action officers (AOs). Process management is not

a new concept to many of these officers, but is known by a different name - the "bubba network." [Ref. 12] Action officers routinely focus on the processes necessary to complete their assigned task, regardless of functional area. This may include calling another officer, or "bubba," at a different organization to get the information, results, or advice necessary to move the assignment to the next step. Process improvement is a term coined in the mid 1980s so many of these officers were initially introduced to the concept during college or as young officers. Nevertheless, if there is no ownership at the first two levels, transformation will not happen at Level III.

A double-edged sword in this battle is the strong support of senior civilian leadership. Many of the organizations within the MCBE have civilians in senior positions of leadership. Of those, some have corporate experience while others bring experience from other services or government agencies. As with TQL, most of these employees have embraced CDS and MCCPIP. The civilians are the continuity in most of these organizations because they do not transfer to a different organization every two or three years. Their support is critical if the CDS is to survive. [Ref. 12]

The downside to this point is highlighted by the lack of strong Marine support in the face of strong civilian support. At many MCCPIP meetings, no uniforms are present, which announces quite clearly an obvious lack of "buy-in" by Marines. [Ref 12] Marines may see this as a "civilian push" instead of a better business method to support the FMF. Similar to the manner in which TQL was introduced to the Marine Corps, the CDS is not being presented as the Marine business "weapon of choice" but just another initiative that no one in uniform truly embraces.

f. Line up Political Sponsorship

Leadership alone can not make the change. To survive, be accepted, and be implemented the CDS requires political sponsorship. As part of the implementation plan, a thorough stakeholder analysis should have been performed to identify allies, opponents, and neutral organizations. Once identified and classified, another study should have been conducted to ascertain what level of support from which stakeholder was necessary to implement the CDS. If sponsorship did not exist at the time of the study, the plan for gaining support would have to be included into the implementation plan. Lastly, because sponsorship is necessary, progress or lack of progress in gaining support

would have to be monitored and the implementation plan adjusted as necessary.

Other than an organizational stakeholder's analysis, no other study was performed or is known to have been performed. No study was performed to discover which organizations would support the CDS and which would attempt to slow implementation down. Because reorganization around processes involves gains and losses of rank, billets, and personnel, the author believes that organizational resistance to implementing the CDS should have been anticipated.

g. Build the Foundation

Crafting an implementation plan and developing enabling structures together create the foundation for the CDS. The initial and continuous MCCPIP reviews by the steering groups combined with the publication of the CDS order establish how the MCBE should be organized, function, and support its customer. Education and leadership will be the cement that holds the foundation together. Without these two traits, and they appear to be missing today, the MCBE, as identified by the CDS, will not be built. [Ref. 12, 20]

h. Communicate

Identified by SRA as the manner by which to effect change, communication is crucial to implementing change and is where the Marine Corps is losing the battle. Findings from its original change analysis study should have been communicated by the Marine Corps to its members. Along with that announcement should have been a plan for building support within the ranks of the Marine Corps for the new MCBE.

Senior leadership within the Marine Corps should have actively "sold" CMC's vision, strategy, and plan for the Business Enterprise. [Ref. 22] Although clearly defined and articulated by CMC, the Strategic Plan for the Marine Corps Business Enterprise has only been read by a few Marines and fewer still understand it. Despite its essential ties to the success of the CDS, the Strategic Plan is not getting communicated. One must ask why the Marine Corps has done so little to get this message to all Marines.

Secondly, that same senior leadership should have articulated the need for organizational change to the rest of the organization. [Ref. 13] This would help convince "nay sayers" within the Marine Corps that change is necessary. The concept of process improvement is still unclear to many leaders within MCBE organizations, so

changing to an unknown system from a "tried and true" system makes little sense to them. All levels of the Enterprise need to be informed. It is obvious that the rationale for change is known at the senior levels, but those reasons have not been communicated to the bulk of the organizations employees. [Ref. 20, 22]

The author believes identifying those employees affected by the change would have been a prudent decision to quell useless "rumor mills" that appear when change is discussed. In part, this could have been accomplished after each process was reviewed. Providing this information would have accomplished two objectives: removed resistance to the change by providing information and educated the individuals by providing the reasoning behind the CDS. [Ref. 12]

Additionally, success criteria (or metrics) must be articulated so individuals involved in the MCBE know if their efforts are accomplishing anything. Before these can be articulated, they have to be identified, a step that has not yet been taken. [Ref. 1, 2-10]

Communicating what changes will occur along with the expected resistance to those changes must be accomplished to mitigate or remove resistance to those changes. Fear of the unknown is perhaps the biggest reason that individuals fear change, and providing them with

relevant information will remove much of that fear. If that information is coupled with the knowledge that an organization fully expects resistance in certain areas, not only is the fear removed, but also a sense of confidence in management is instilled. [Ref. 15, 200]

Lastly, communicating the leadership's commitment to change is vital. By himself, CMC can not effect the necessary changes. Other leaders, formal and informal, must convey to their organizations that they believe process management, in the CDS, and they are fully committed to making it work.

Across the board, individuals that were interviewed expressed the need for the Marine Corps to put together a "road show" that included the information just discussed: what is the CDS, what is the MCCPIP, why are they necessary, how does it impact you, and is it here to stay? [Ref. 12, 13, 14, 16, 20, 22] This travelling information brief should be taught by Marines in uniform, not civilians, and be structured towards the Captain to Colonel audience. An invaluable source of education, this presentation would provide familiarity and confidence in the CDS thereby enabling the MCBE to change with less resistance.

i. Reinforce and Institutionalize Change

Finally, reinforcing the change that has been introduced and then institutionalizing that change will help to ensure that the new system is firmly entrenched and accepted. Before it can be reinforced and institutionalized, the CDS must first exist throughout the MCBE. Although it exists on paper, the CDS appears to be a methodology embraced by those whose organizations are empowered by the reorganization, and resisted by those whose organizational power is diminished by the reorganization. [Ref 14]

E. CONCLUSION

In the author's opinion, there are numerous flaws in the implementation of the CDS within the MCBE. As outlined by *The Ten Commandments of Change*, much can be done to correct many of those flaws. To start, four areas should be immediately addressed: education, reinforcement, behavior modification, and rewards.

Education is critical to the success of the CDS. Outlined by SRA in their report and also discussed previously, educating all Marines and civilians within the MCBE and FMF is crucial. If the CDS is not understood, how can anyone expect that it will be utilized? The "road show"

idea is sound and can only serve to help in the change effort.

Reinforcement of the CDS by senior leadership will help carry the momentum of the initial education. Senior leaders must believe in the CDS or their reinforcement will fail. This step implies that steps have already been taken to educate the senior leaders so that they embrace the CDS.

One way to change beliefs and values regarding the CDS is to change individual behavior. [Ref. 23, 337] Behavior modification implies that individuals will be forced to focus on the process task without concern for the functional organization. In the author's opinion, this must start at the top of the organization with the Generals, continue down to the Colonels, and then further down to the Captains. The steps have been outlined, the processes are clearly defined, but what currently stands in the way is the functional focus. Leaders get concerned when individuals outside their chain of command task their subordinates, or as commanders they are responsible for processes that do not fall under their immediate control. Nevertheless, forcing process management will allow individuals to see the merits of the concept, get them used to working in a process-focused environment, and eventually help change their minds.

Changing an individual's behavior may not effect the desired cultural response by itself, but if coupled with an appropriate reward system, the odds are dramatically increased. In addition to education, reinforcement, and behavior adjustments, individuals must have some reward system in place to help them understand what is and is not correct. This reward system must include both recognition (private or public) and other forms of extrinsic motivation such as monetary or organizational awards. Ultimately, this reward system, coupled with the modification behavior, may lead the individual to recognize the inherent benefit of the new task they are being asked to perform, and ultimately, acceptance of the new system. [Ref. 23, 338]

IV. INFORMATION MANAGEMENT

The correct and timely management of information is crucial to any military or civilian organization. In the author's opinion, despite the acquisition of countless IT and IM systems, the effective management of information remains beyond the grasp of many organizations including the U.S. Marine Corps. A paradox appears to exist between the amount of money being spent on the acquisition of IT and the measurable benefit received from those same systems. [Ref. 32, 33]

This paradox is in part responsible for the "Information Technology Management Reform Act" also known as the "Clinger-Cohen Act" which passed into law in August 1996. The main purpose of the act is to "streamline IT acquisitions and emphasize life cycle management of IT as a capital investment." [Ref. 25, 1] The impact on DOD and consequently the U.S. Marine Corps has been dramatic. Key acquisition objectives such as returning IT procurement authority back to individual government agencies, encouraging incremental acquisition of IT systems, and encouraging the acquisition of commercial off the shelf (COTS) IT products directly affected the IT acquisition method used by the U.S. Marine Corps. Further, the Clinger-

Cohen Act also included several management objectives that have been incorporated by the U.S. Marine Corps:

- Design and implement an IT management process for maximizing the value and assessing and managing the risks of the IT acquisitions

- Integrate the IT management process with the processes for making budget, financial, and program management decisions

- Establish goals for improving the efficiency and effectiveness of agency operations and, as appropriate, the delivery of services to the public through the effective use of IT, and prepare an annual report, to be included in the executive agency's budget submission to Congress, on the progress in achieving the goals

- Ensure that performance measurements are prescribed for IT by or to be acquired for, the agency and that they measure how well the IT supports agency programs

- Ensure that the information security policies, procedures, and practices of the agency are adequate, appoint a Chief Information Officer (CIO)

As a direct result of the last bullet, the position of CIO of the Marine Corps was created on 20 November 1995 and assigned to the AC/S C4I. [Ref. 26]

A. CHIEF INFORMATION OFFICER

The primary mission of the CIO is to "develop the Marine Corps' strategic vision for the future of information and knowledge capabilities." [Ref. 26] To perform this mission, the CIO developed an IT investment strategy to "support information requirements of the intelligence, operational, and staff communities." This strategy, known

as the Information Management Implementation Plan (IMIP), is designed to "coordinate, synchronize, and standardize actions across the Corps in order to focus limited resources and ensure a high probability of achieving our goals by 2006." The plan will be achieved through the use of the Information Management Process. [Ref. 8, 1-1] To counter the current challenges faced by the CIO in accomplishing the mission, the CIO established three main goals.

- Develop and maintain an integrated, cohesive information management process and technical infrastructure that supports unrestricted information processing and exchange within and external to the enterprise.

- Provide decision-makers with an information management process that supplies information that enables them to make decisions faster than competitors.

- Develop and promote long and mid-range information management planning that establishes clear linkages to the enterprise's strategic plan. [Ref 26]

Recognizing the need for enterprise wide support to achieve these goals, the CIO routinely incorporates feedback from key IT stakeholders within the enterprise. The following agencies make up the key stakeholders in the Information Management Process:

1. Headquarters, U. S. Marine Corps, C4I Department

The C4I Department is responsible for managing the IM Process and developing policy, strategies and plans.

2. The Chief Information Officer

The CIO serves as the principal advisor to the Commandant of the Marine Corps (CMC) for all IM issues and is the IM process owner. The CIO chairs and manages the Information Management Steering Group (IMSG) which is a panel of General Officers that advises the Commandant of the Marine Corps on IM related issues. Individual General Officers on the IMSG include:

- CG, MCCDC
- DC/S M&RA
- DC/S PP&O
- DC/S Aviation
- DC/S I&L
- DC/S P&R
- Commanding General, Marine Forces Atlantic (COMMARFORLANT)
- Commanding General, Marine Forces Pacific (COMMARFORPAC)
- Commanding General, Marine Forces Reserve (COMMARFORRES)
- AC/S C4I
- Commander, Marine Corps Systems Command (MARCORSYSCOM)
- Director of Administration and Resource Management
- Commanding General, Marine Corps Base and Station

3. Headquarters, U.S. Marine Corps, Programs and Resources (P&R) Department

Validates capability requirements, coordinates development and documentation of USMC programs and USMC portion of the biennial DoN Program Objective Memorandum

(POM). P&R is the principal point of contact for all USMC Planning, Programming, and Budgeting System (PPBS) activities. Single authority and central focus to all USMC resource development efforts.

4. Marine Corps Combat Development Command

MCCDC develops Marine Corps warfighting concepts and determines associated required capabilities in the areas of doctrine, organization, training and education, equipment, and support and facilities. MCCDC supports other major processes of the Combat Development System (CDS).

5. Marine Corps Systems Command

MARCORSYSCOM provides research, development, and acquisition of equipment, information systems, training systems, and weapons systems to satisfy all approved materiel requirements for the Marine Corps. COMMARCORSYSCOM serves as the Marine Corps Acquisition Milestone Decision Authority (MDA) for IT Programs in the following acquisition categories: IT Acquisition Category (ACAT) III; IT ACAT IV; and IT Abbreviated Acquisition Programs (AAP).

6. Marine Corps Operational Test and Evaluation Activity (MCOTEA)

MCOTEA is responsible for managing the Marine Corps Operational Test (OT) program for acquisition categories ACAT I through ACAT IV, less the OT of aircraft, and performs other functions as may be directed by CMC.

7. Functional and Process Owners

Functional and Process Owners, such as DC/S Aviation and DC/S M&RA, have functional system sponsorship. They are responsible for identification of IM deficiencies and Program Objective Memorandum (POM) initiatives to the IMSG. They are also responsible for Program Management of software application segments.

8. Marine Forces (MARFORs) and the Supporting Establishment (SE)

MARFORs and the SE are responsible for the identification of IM deficiencies that are forwarded to MCCDC via Fleet Operational Need Statements (FONS). [Ref 8, 2-2]

All IM stakeholders have an important role in helping the CIO establish a vision for the future. Whether their role is identifying a deficiency through a FONS (MARFOR), identifying a concept through experimentation (MCWL),

validating the concept or deficiency (MCCDC), or generating a change to DOTES (HQMC, MCCDC, MARCORSYSCOM), the role of the individuals within each agency can not be overstated. The combined effort of all IM stakeholders is necessary to create the Marine Corps wide IM capabilities required to achieve information dominance and successfully employ the warfighting concepts of Operational Maneuver From The Sea (OMFTS). [Ref. 8, ES-1]

B. INFORMATION MANAGEMENT IMPLEMENTATION PLAN

The challenge faced by individuals within many organizations as well as the U.S. Marine Corps is how to identify the most effective and efficient method of managing information. The adoption of the Marine Corps IMIP by the Marine Corps' CIO addresses this challenge head on. [Ref. 8, ES-1] By identifying the mission of IM, the processes within the enterprise necessary to accomplish that mission, and the organizations under which those processes fall, the CIO can use the IMIP as a "Corps-wide roadmap to the future" development of IM capabilities. [Ref. 8, ES-1]

1. Information Management Process

The IMIP is designed principally to "coordinate, synchronize, and standardize actions across the Corps in order to focus applications of limited resources." [Ref. 8,

1-1] Designed to operate within the CDS, the IMIP is designed to help individuals within the Marine Corps identify, develop, and maintain a robust IM capability. In addition, the IMIP provides a strategy for those same individuals to use that fosters the use of new business methods, such as best business practices, while divesting themselves of antiquated business methods.

The principal tool developed by the CIO to align with and support the enterprise (and MCBE) with information management is the Information Management Process. [Ref. 8, 2-3] The CIO's goal for Information Management is for IM to add value by enhancing decision making at all levels. By providing the correct individuals with information that is better in quality, more relevant, and more timely than the previous information system, the Information Management Process will help to make individuals better informed. As a result of this improved information management capability system, employees (MCBE) and customers (FMF) will be better integrated regardless of geographic boundaries. [Ref. 8, 2-3]

2. Best Practice

Information garnered by the General Accounting Office's (GAO) inspection of five private sector companies, five

state government offices, and nine federal agencies led to the identification of a consistent set of practices used by senior managers in leading organizations to improve mission performance through IM. [Ref. 8, 2-4] Using these eleven best practices as a template, individuals within the office of the CIO analyzed and developed the Information Management Process. Figure 11 shows the eleven best practices

Decide to Change	Direct Change	Support Change
1. Recognize and communicate the urgency to change IM practices.	4. Anchor strategic planning in customer needs and mission goals.	9. Establish customer/supplier relationships between line and IM professionals.
2. Get line managers involved and create ownership.	5. Measure the performance of key mission delivery processes.	10. Position a Chief Information Officer (CIO) as a senior Management partner.
3. Take action and maintain momentum.	6. Focus on process improvement in the context of an architecture.	11. Upgrade skills and knowledge of line and IM professionals.
	7. Manage information systems projects as investments.	
	8. Integrate the planning, budgeting, and evaluation processes.	

Figure 11. Best Practices [Ref. 8, 2-4]

utilized in developing the Information Management process. Ultimately, the Information Management Process should allow senior leaders within the Marine Corps to ask and receive answers to the following questions:

- Are the right strategic information systems and reengineering projects being worked?

- Are external and internal customer requirements being satisfied and is overall productivity and quality being improved?

- What is the risk adjusted return on information systems investments?

- Are there performance measures that truly define success for the organization in terms of expected outcomes for the customers?

- Does management information support critical decision-making and reinforce accountability for results?

- Is management information accurate, timely, secure, usable, and targeted at the decision makers and decision processes? [Ref. 8, 2-5]

Currently, all answers to the above questions are either "no" or "do not know." [Ref. 8, 2-5] Although still in their infancy, the IMIP and Information Management Process are touted by the CIO as the tools to give the Marine Corps information management superiority.

3. Acquisition Strategy

Recognizing that previous methods of managing information management led to stovepiped, non-integrated systems, the CIO created a new acquisition strategy designed around the Information Management Process. Past methods of IM acquisition resulted in different agencies planning,

programming, and budgeting for similar systems that competed against one another for funding. [Ref. 8, F-1]

The impetus behind this revelation was the initial review of HQMC P&R by the program review group (PRG) resulting in the RA process. That review (as discussed in Chapter 1) identified excessive and misdirected expenditure of funds for IT programs crossing numerous functional areas. As a result, the AC/S C4I organized integrated product team (IPT) composed of members from organizations within the CDS. Members of the IPT were given the goal of answering whether or not the current Marine Corps budget system hinders C4I interoperability, and if so, is there a better system. [Ref. 8, F-1]

The members of the IPT discovered that a problem existed with the current budgeting method. The IPT recommendations resulted in the "Unified MAGTF C4I Requirements and Acquisition Strategy."

The backbone of the acquisition strategy is the creation of a common Marine Corps information infrastructure. Once designed, the common infrastructure will be the basis for all further IT requirements, resourcing, and acquisition. The CIO's believes that approximately 80% of IT resources will be used to establish and maintain the common IT infrastructure. [Ref. 8, F-2]

The remaining 20% will be those applications that are mission specific, such as Intelligence, Logistics, Fire Support, Aviation, or Manpower. Integration between mission specific applications will be simplified by mandating that they only have to be able to interface with the common infrastructure, not each other. The ability to interface with the common infrastructure will increase interoperability between all mission specific systems and allow the successful application of DOTES in an integrated manner across the entire Marine Corps. [Ref. 8, F-2] The viewpoint of IT acquisition individuals now shifts from ensuring that every IT system executes autonomously to ensuring that the IT system fits within the framework of the common infrastructure. If successful, this strategy will improve interoperability, reduce training costs and time, reduce maintenance, and increase IT support. Figure 12 shows the C4I layered architecture model.

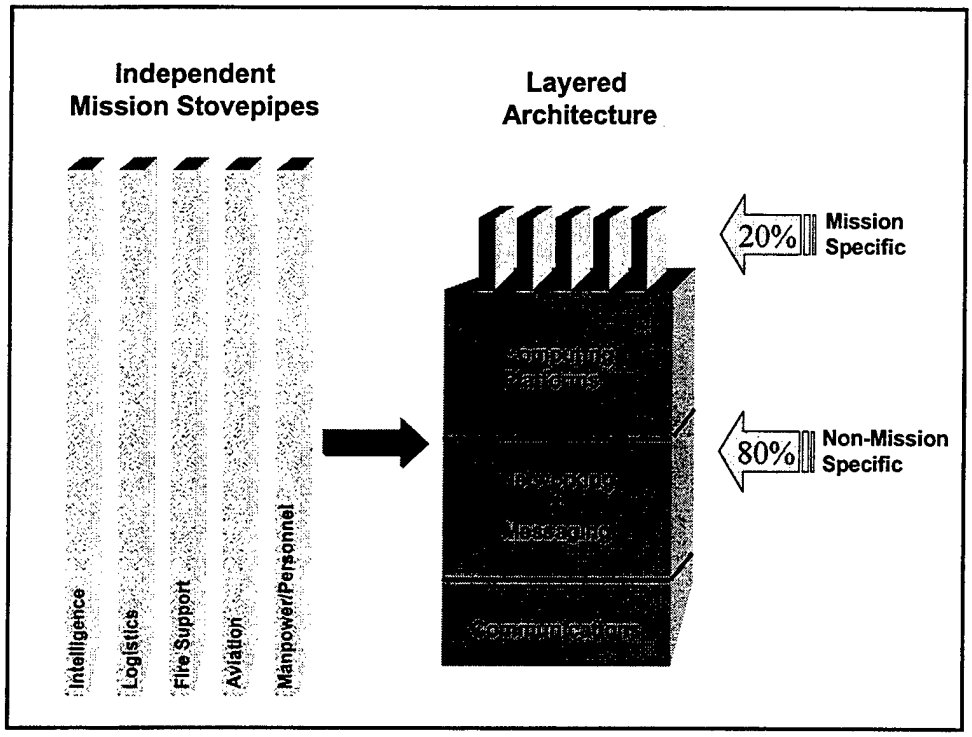


Figure 12. C4I Layered Architecture Model [Ref. 8, F-2]

The cornerstone of this strategy is the common infrastructure which now becomes the foundation for future IT acquisitions. The infrastructure would be joint (CINC-centric) to ensure it meets the needs of the warfighter and standards-based to ensure commonality. Interoperability is achieved by utilizing the Global Command and Control System (GCCS), Defense Information Systems Network (DISN), Defense Messaging System (DMS), and Global Combat Support System (GCSS) as the basis for the infrastructure. By using the same systems as the CINCs, the Marine Corps' strategy ensures high levels of interoperability in command and

control. [Ref. 8, F-3] Ideally, the user will see the same picture on his desktop regardless of his location, billet, or rank with the exception of specialized applications that will have unique icons.

Brigadier General Shea, the current U.S. Marine Corps CIO, and his staff recognized the current Information Management Process required some enhancements. The current method of introducing IT systems through the CDS from concept, through DOTES assessment, to capability is time intensive. One CIO goal for this strategy is to restructure how IM requirements are defined and capabilities are achieved. [Ref. 8, F-3] The new requirements frameworks includes:

- Utilizing GCCS, DISN, DMS, and GCSS as the "design to" infrastructure.
- Focus on becoming a "shopper" and not a "developer" of capabilities by utilizing commercial off the shelf (COTS) products when possible.
- Regular refreshment of existing mainstream technology and the divestiture of old equipment on a regular basis. [Ref. 8, F-5]

Oversight by the CIO is key to the success of this strategy. [Ref. 27] Using the CDS to create new capabilities ensures that all stakeholders are given the opportunity to provide input regarding new IT concepts. The existing Information Management Process ensures the concept

will progress through the CDS. Once implemented, the acquisition strategy will possibly enhance the existing Information Management Process by either expediting the process (COTS) or by simplifying the process (designing to a common infrastructure). [Ref. 27]

C. COMBAT DEVELOPMENT SYSTEM INFORMATION SYSTEMS

The CIO is also reviewing the use of IT in an administrative role to support the CDS. In addition to the multitude of electronic mail (email) and functional area applications (organizationally specific), there are essentially two IT systems designed to support and enhance the CDS: the Combat Development Tracking System (CDTS) and the Command Automated Program/Information System (CAPS). [Ref. 27] Both systems are designed to be "user friendly" by using the Internet as the operating medium and browser technology as the user interface.

1. Combat Development Tracking System

The CDTS is designed as an enterprise information system which will "collect, organize, and present in varying formats information and documentation pertinent to the Marine Corps Combat Development System." [Ref. 28, 2] Computer Science Corporation (CSC) using a Lotus Domino server and Lotus Notes software designed the system. The

system is designed to give authorized users from within MCCDC, MARCORSYSCOM, HQMC, and the FMF access to information pertaining to warfighting deficiencies within the U.S. Marine Corps. Because some information contained within the CDTS is sensitive (requirements parameters), user access is tightly controlled.

Much of the current database of information within the CDTS has recently been entered by the system developer, but ideally, information would initially be entered by WDID upon receipt of a FONS from the FMF and given a CDTS identification number (CDTS #). Additional information entered by WDID would include minutes from both the CAWG and CAC meetings. If disapproved (or invalidated) by the CAC, the FONS information is archived. If approved (or validated) by the CAC, the FONS information is then partitioned into one of five "Portfolios" each representing one area of DOTES. The theory follows that once identified, a deficiency's solution will be doctrinal, organizational, training, equipment, or support and facilities. Currently, only the "E (equipment)" Portfolio is being fully utilized although the "D (doctrine)" and "T (training and education)" are now being added. The remaining two Portfolios, "O (organization)" which belongs to TFS and "S (support and

facilities)" which belongs to I&L, will be added during subsequent releases of CDTS. [Ref. 28, 2]

In addition to the information already discussed, the CDTS is intended to cover the full spectrum of the CDS: the MCMP, validation documents, requirements determination, funding, and acquisition documents. Users should be able to use CDTS information to monitor progress of a validated deficiency through to its identified and integrated solution. Although viewed as the IT system to support the CDS, the CDTS is still far from complete. [Ref. 27]

Several system upgrades are required before the CDTS will become an effective IT system for the CDS. Currently, no substantive DOTES assessment information is being added to the CDTS. The DOTES assessments are filled in by the branches/divisions responsible for each pillar. Because there is no directed effort to do DOTES Assessments and no established Portfolio to encourage input, no information is being posted to the DOTES Assessment documents within CDTS Portfolios by Portfolio Managers. Consequently, users of the system do not have visibility on the status or progress of validated deficiencies without interacting with the responsible agency. [Ref. 29] In the author's opinion, this problem exists because Portfolio Managers have not been forced to keep their Portfolios populated. Until an

"advocate" with enough rank to force the issue steps forward, this issue will continue to exist.

Secondly, CDTS is not used extensively throughout the MCBE. Many individuals who have access to the CDTS do not use the system as an information tool. [Ref. 29] In the author's opinion, until and unless the system is accepted and embraced, the CDTS will add little to the efficiency of the CDS, and consequently be of little use. As with the CDS, commitment by senior leadership and the introduction of a reward system within the MCBE will result in wider use of CDTS. The impetus to populate the Portfolios and complete the CDTS may come from outside agencies that learn to rely on the information provided by the CDTS.

2. Computer Automated Program/Information System

The second system used in support of the CDS is CAPS. Although used primarily by individuals within MARCORSYSCOM, individuals throughout the MCBE also use CAPS. Although several tiers of access are resident within CAPS, access to the system is less restrictive than CDTS and the author believes that it is a more widely used system than CDTS. Like CDTS, CAPS is run using a Lotus Domino server and Lotus Notes software. Progressive Data Systems (PDS), incorporated, a local contractor designed CAPS.

The purpose of CAPS is to "assist the Marine Corps Systems Command project officers and managers in the accomplishment of requirements associated with the acquisition process." [Ref. 31] The key to success at MARCORSYSCOM is effective document management and CAPS provides:

- Standardized briefing and project documentation packages
- Centralized location for storage of program data and reference material
- Reduced search and retrieval time for document information
- Simultaneous view/query of documents at multiple workstations. [Ref 31]

Information within CAPS is updated by the various Program Management offices. As a result, information residing on the system is kept up-to-date. Because access to CAPS is relaxed, many agencies outside of MARCORSYSCOM can view the status of equipment in the acquisition cycle and ascertain milestone dates, contract information, and equipment information.

Much of the information currently residing on CAPS for any acquisition program is routinely used by multiple agencies within MARCORSYSCOM. Consequently, CAPS saves tremendous administrative time by removing duplication of

effort. Additionally, CAPS provides document location information, which further reduces administrative time. [Ref. 31]

Because both CAPS and CDTS use a CDTS# in their databases, the two systems are able to interact. Although originally designed independently of one another, the two systems now allow authorized users to move from one system to another, allowing a more complete view of the current status of a validated deficiency. Ideally, nothing should be in the acquisition cycle (CAPS) without having gone through requirements (CDTS).

To ensure that the systems remain integrated as well as planning for the future use of both systems, contractor representatives for both CAPS and CDTS meet on a routine basis. [Ref. 30] In addition to the contractors, representatives from both MCCDC and MARCORSYSCOM are also present at these meetings. To date, there is some confusion as to what exactly is the end state for the CDTS. [Ref. 27] Consequently, although the two systems are joined, the CAPS contractor continues to move forward under guidance from MARCORSYSCOM. [Ref.30]

E. THE FUTURE

Ascertaining what the future IT system will be for the CDS is not a simple task. In the author's opinion, the future CDS system, possibly an enhanced CDTS, should be an enterprise information system. This system will incorporate knowledge management, ease of use, low maintenance, and high user involvement. Much of what the CDS does is push and pull information from individual to individual throughout the MCBE. Information found within the current CDTS, CAPS, and also within elements of HQMC, such as Programs and Resources (P&R), must be resident within the future system. Senior leaders should be able to pose a question regarding the status of a particular initiative and its affect on the budget, and be able to receive an answer from analysts within his organization without delay or the need to consult multiple agencies. In the author's opinion, providing the right person with the right information in the right form and at the right time should be the goal of this system. The author's recommendation for enhancing information systems used to support the CDS will be found in his Conclusions and Recommendations section.

V. CONCLUSIONS AND RECOMMENDATIONS

In essence, the purpose of the CDS is to take identified deficiencies (e.g. technology, doctrine, and structure) and create a solution for that deficiency that satisfies one or more areas of DOTES. This thesis includes intricate details involved in identifying requirements, validating them against the current and future mission needs of the U.S. Marine Corps, and the necessary steps in identifying a solution for the requirement.

In the author's opinion, senior leadership within the U.S. Marine Corps is improving the enterprise by not only recognizing the existence of a business enterprise but also attempting to improve the business enterprise with the CDS. Utilizing the Marine Corps Continuous Process Improvement Program as a reengineering tool, senior leadership within the U.S. Marine Corps is breaking down functional barriers and working towards process management. Business process identification, refinement, and automation are requisite actions for successful organization and the U.S. Marine Corps is no exception. Much has been learned by U.S. Marine Corps leadership since 1994 by implementing first the CDP

and subsequently the CDS, however many areas of the CDS require improvement. [Ref. 13]

A. CHANGE MANAGEMENT

In the author's opinion, individual organizations that make up the MCBE are led and managed by competent and capable individuals. The senior person within each organization understands how their individual organization operates and how the organization's mission supports the FMF. The author has concluded that despite the organizational leaders competence, capability, and years in the organization, the concept of process management is still not fully understood by senior and upper management (LtCol through General). As discussed in Chapter II, the head of the enterprise (General Krulak) mandated an organizational change without support from the business enterprise's senior and upper management resulting in resistance to that change. Further, knowledge regarding the purpose, vision, mission, and effects of the change were not passed to the employees of the business enterprise, further creating resistance.

Recommendation.

Senior leadership should immediately concentrate on four CDS areas: education, reinforcement, behavior modification, and rewards.

As discussed in Chapter II, WDID, as the integrator of the CDS, should immediately concentrate on four key management areas within the business enterprise: education, reinforcement, behavior modification, and rewards.

Education is critical to the success of the CDS. Outlined by SRA in their report and also discussed previously, educating all Marines and civilians within the MCBE and FMF is crucial to the effective implementation of the CDS. Further, commitment and reinforcement by senior leadership will help carry the momentum of the initial education. Behavior modification forces the individuals to focus on the process and not the function. In the author's opinion, this must start at the top of the organization with the Generals, continue down to the Colonels, and then further down to the Captains. Changing an individual's behavior may not effect the desired cultural response by itself, but when coupled with a reward system, the odds are dramatically increased. This reward system must include both recognition (private or public) and other forms of extrinsic motivation such as monetary or organizational awards.

B. PERFORMANCE MEASUREMENT

There is an old adage that states "if you can't measure it, you can't manage it." In the author's opinion, terms

such as "effectiveness," "efficiency," and "productivity" are bantered about many organizations without serious thought to quantifying them. Organizations within the MCBE have had their processes identified and refined. These same organizations will attempt to measure their performances even though measurement goals do not currently exist. [Ref. 1, 4-4] While several key process metrics were developed to measure the resource allocation (RA) process, the remaining processes do not currently have established measures of performance. [Ref. 11, 5] In the author's opinion, successful performance-based management depends upon the effective use of performance measures.

Recommendation.

Establish performance based measurement methods for each of the eight processes within the CDS.

These metrics should not be used as a "report card" for the process owner but as a tool to improve the process. [Ref. 11, 3] Once metrics are established that can be used to gauge process improvements, improvements can be linked directly to individuals or organizations. Closely aligned with the establishment of performance measures should be a reward system that recognizes outstanding performance based on the established measure.

> All high-performance organizations whether public or private are, and must be, interested in developing and deploying effective performance measurement and performance management systems, since it is only through such systems that they can remain high-performance organizations. [Ref. 35]

Additionally, the author believes that since the CDS is dependent upon IT, IT performance measures should be directly linked to the business enterprise's goals and objectives.

> Organizations succeed when their business units and support functions work together to achieve a common goal. This holds true for performance measurement, which entails more than just developing performance measures. It also includes establishing business strategies, defining projects that contribute to business strategies, and evaluating, using and communicating the results to improve performance. [Ref. 34]

Various methods exist for the identification and introduction of performance based metrics. Several government agencies have published guidelines, which outline the requisite steps in identifying, and adopting performance based measurements. [Ref. 34, 35] Once identified, commitment from senior leadership is still necessary. As with the acceptance and implementation of the CDS, senior leadership within the business enterprise must be involved. Lastly, individuals within each organization must be

responsible for the utilization of performance measurement tools within their respective processes.

C. KNOWLEDGE MANAGEMENT

The vision stipulated in the Information Management Implementation Plan is "an adaptive, knowledge-based organization that generates, uses, and shares the knowledge required to achieve information dominance." [Ref. 8, 3-1] In the author's opinion, knowledge management (KM), or perhaps more importantly, the use of knowledge, is critical to the success of the CDS. Recent studies of corporate America show that 80% of CEOs do not fully appreciate the role of knowledge in business. [Ref. 36] The author believes that senior leadership in the U.S. Marine Corps also does not appreciates the value of knowledge.

More information does not always equate to more knowledge; it may simply lead to information overload. [Ref. 37] The U.S. Navy believes that successful KM can enable "valuable knowledge-intensive functions across time, distance, and organizational lines." [Ref. 37] The author believes that the CDS would receive the same benefits from KM that the U.S. Navy anticipates such as:

- Sorting, organizing, and synthesizing information that's in the best form for human understanding.

- Tracing and analyzing information flow to suggest improvements or value-addition.

- Providing a means for focused collaboration, regardless of distance.

- Locating sources of personal know-how via on-line yellow pages.

- Turning informal, tacit knowledge into codified, explicit, usable knowledge.

- Better capturing, distilling, and exploiting lessons learned. [Ref. 37]

The CDS comprises many organizations that rely upon individuals from myriad military and civilian backgrounds to make intelligent decisions. As with many organizations, the author believes that individuals within the CDS are not fully equipped to make intelligent decisions because they do not have the requisite information or knowledge. Perhaps the individual is new to the organization, junior in rank or grade, or unfamiliar with the organizational mission. Depending on that individual's billet, their impact on the CDS varies. Regardless, if the CDS contained some method of harnessing knowledge, these individuals could learn before being asked to make decisions about issues they know little about.

Knowledge can be broken down into two distinct types: tacit, and explicit. [Ref. 38, 8] Explicit knowledge refers to "hard" facts, such as words and numbers, and can

be easily communicated. Tacit knowledge refers to less tangible facts such as personal insights or intuition. The "gut feeling" or "lessons learned" from individuals within the CDS is invaluable and should be captured for others to learn from. [Ref. 38, 8] Once harnessed, the difficult step is making that tacit knowledge explicit so that others can learn from it. Knowledge in many firms is treated as a capital asset. [Ref. 39, 149]

There is, of course, an opposing view that one can not manage knowledge. Vincent Barabba, general manager of corporate strategy and knowledge development at General Motors Corporation stated:

> My job is to make sure our senior management has the knowledge resources they need to make strategic decisions. I'm disenthralled with the idea of knowledge management — as if you could actually manage what people need to know in a world that's constantly changing. [Ref. 40]

The author believes that one's point of view on KM begins with one's definition of KM. The U.S. Navy describes KM as "organizational elements, including processes and behavior, for capturing information flow and building better, more actionable user knowledge." [Ref. 37] The author believes that the U.S. Navy's goal for KM is to provide individual access to knowledge as well as

facilitating the transfer of knowledge amongst individuals and organizations.

Recommendation.

Identify and implement KM techniques (e.g. procedures and systems) to effect capture, transfer, and access to knowledge within the business enterprise.

The author believes that sharing knowledge and access to knowledge are key elements to the success of the CDS. Several examples exist of organizations that have effectively focused on knowledge possessors and prospective users of that knowledge. The goal in these organizations was to identify the individual (or organization) with the knowledge one needs and then successfully transfer that knowledge. [Ref. 39, 148] Organizations such as Microsoft and British Petroleum provide excellent examples of organizations that consolidate and transfer personal knowledge as well as transfer tacit knowledge. [Ref. 39, 149]

The author believes the Marine Corps would benefit from examining corporate knowledge management case studies because of the similarities in organizations. Both Microsoft and British Petroleum are large and complex organizations. British Petroleum employed KM as a tool to

help turn forty-two independent business assets into a "federation of assets." The British Petroleum goal is to allow the individual businesses the "freedom to develop processes and solutions appropriate to their particular problem" while simultaneously incorporating the best innovations at the enterprise level. In essence, British Petroleum wanted to "combine the agility of a small company with the resources of a large one." [Ref. 39, 19]

Microsoft created a Skills Training Development program to help them remain on the leading edge of industry. [Ref. 39, 75] The program is designed to improve the matching of employees to their assigned jobs. Matching is done in a five-step process:

- Develop a structure of knowledge competency types and levels.
- Define the knowledge required for a particular job.
- Rate the performance of individual employees in particular jobs by knowledge competencies.
- Implement the knowledge competencies in an on-line system.
- Link the knowledge model to training programs. [Ref. 39, 75]

The "mapping" of employee knowledge to job knowledge requirement is working well for Microsoft and has the added benefits of making knowledge easier to find as well as

promoting the idea that knowledge belongs to the enterprise as a whole, not just one part of the enterprise. [Ref. 39, 76]

Both the British Petroleum and Microsoft cases have KM aspects that are applicable to the Marine Corps. The British Petroleum example groups independent organizations together into a "federation" which is similar to the U.S. Marine Corps organizations that make-up the CDS. The Microsoft example details a plan to assign individuals to jobs based not on their billet or rank but their knowledge. Identification of the individual's knowledge as well as the requisite knowledge for the job is stored on an server with a web front end at the company headquarters. [Ref. 39, 76] In the author's opinion, the U.S. Marine Corps should implement such a system to reduce training time, save money, and make individual and corporate knowledge available to everyone throughout the business enterprise.

D. INFORMATION TECHNOLOGY

Admiral Archie Clemins presented seven "absolute precepts" of a highly effective information system when the concept of Information Technology for the 21st Century (IT-21) was first introduced. [Ref. 41] The number one habit

on Admiral Clemins list is "If the boss doesn't use it, don't buy it." [Ref. 41]

1. Combat Development Tracking System

In the author's opinion, the Combat Development Tracking System (CDTS) that is being developed to support the CDS appears to violate Admiral Clemins first rule. The author believes that if the CG, MCCDC relied upon the CDTS, he or she would notice areas within the system that are not being updated by his or her organization. Consequently, the author believes the CDTS will never adequately support the CDS until it has a champion. If not the CG, then at least his deputy should champion the cause for the CDTS.

Secondly, although the CDTS is currently little more than a document repository, the potential exists for growth. [Ref. 42] The CDTS does not currently have a standard operating procedure (SOP) that outlines processes used to update the system's portfolios. [Ref. 42] The author believes that the combination of missing procedures and the lack of a champion will result in a system that no one uses because little is done to make it an information resource.

Recommendation.

Identify and articulate a vision for the CDTS.

A vision of the CDTS must be developed. The author assumes that senior leadership within the MCBE have decided the CDTS is the IT system they want to support the CDS. To be successful, these same senior leaders should have a vision of what the CDTS will be in the future. They currently do not. [Ref. 30, 42]

Mandate the use of the CDTS within MCCDC.

A champion, or "hammer", must be identified within MCCDC so that individuals or organizations responsible for updating the CDTS are held accountable. Presently, many portfolios within the system are empty. Additionally, because there is presently no pressure to ensure the CDTS is updated, procedures are not important. Procedures (SOP) clearly defining organizational responsibility for maintaining the CDTS must also be developed and produced. T

Recent changes within the Warfighting Development Integration Department (WDID) include: (1) a new CDTS project officer and (2) appointing a Brigadier General as the head of WDID. These two additions suggest that the CDS and CDTS are receiving greater emphasis and more "horsepower."

2. Computer Automated Program/Information System

The Computer Automated Program/Information System (CAPS) developed and used by individuals within MARCORSYSCOM and HQMC has received over 11,000 hits over the previous four months. [Ref. 30] The system is currently being expanded to include more visibility on enterprise financial management instead of organizational financial management. System attributes such as scalability and flexibility are built into the system. [Ref. 30] Senior leadership within MARCORSYSCOM is supportive of CAPS and ensures that the system is updated on a daily basis. [Ref. 30]

Although CAPS and CDTS interface with one another, the author believes that a single IT system to support the CDS is necessary. The author believes that CAPS clearly has the organizational backing necessary to ensure system success, but the CDTS should be the lead system. CAPS is designed to support the acquisition process, a portion of the CDS. The CDTS contains information pertaining to all of the CDS if utilized correctly. [Ref. 28, 31]

Recommendation.

Combine CDTS and CAPS.

The feasibility and cost of merging the two systems into an integrated business enterprise IT system should be examined. As the Executive Agent for the CDS, the Commanding General of MCCDC should be the leader of this effort. The current stagnation of the CDTS should be examined and included in any study examining the merger of the two organizational IT systems and included as a risk.

E. FURTHER STUDIES

There are several areas of further study based on the author's work.

1. The role of information technology in managing organizational change and organizational interdependence.

How can IT help the Marine Corps business enterprise respond to the challenges of an increasingly complex and uncertain environment? How can IT help the MCBE achieve a "flexible" organization structure?

2. Further identification of metrics to measure performance within the CDS.

The MCBE needs a clear and cohesive performance measurement framework that is understood by all levels of the organization and that supports objectives and the collection of results. What is that framework?

3. Potential application of Enterprise Resource Planning (ERP) for processes within the MCBE.

ERP is a packaged business software system that lets an organization automate and integrate the majority of its business processes, share common data and practices across the enterprise, and produce and access information in a real-time environment. Can it work within the MCBE? Is it cost prohibitive?

4. Potential application of knowledge management (KM) to support the CDS.

To be successful, the author believes that the CDS must have an IT system(s) that enhances the collection, sharing, and use of knowledge, not just information.

APPENDIX A. GLOSSARY OF TERMS

AAP	ABBREVIATED ACQUISITION PROGRAM
AC/S	ASSISTANT CHIEF OF STAFF
ACAT	ACQUISITION CATEGORY
ACE	AIR COMBAT ELEMENT
ACMC	ASSISTANT COMMANDANT OF THE MARINE CORPS
AO	ACTION OFFICER
ASR	AUTHORIZED STRENGTH REPORT
BPR	BUSINESS PROCESS RE-ENGINEERING
C4I	COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE
CAC	CAPABILITY ASSESSMENT COUNCIL
CAPS	COMMAND AUTOMATED PROGRAM/INFORMATION SYSTEM
CAWG	CAPABILITY ASSESSMENT WORKING GROUP
CBR	CONCEPT BASED REQUIREMENTS
CBRS	CONCEPT BASED REQUIREMENTS SYSTEM
CDP	COMBAT DEVELOPMENT PROCESS
CDS	COMBAT DEVELOPMENT SYSTEM
CDTS	COMBAT DEVELOPMENT TRACKING SYSTEM
CDTS#	COMBAT DEVELOPMENT TRACKING SYSTEM IDENTIFICATION NUMBER
CE	COMMAND ELEMENT
CEO	CHIEF EXECUTIVE OFFICER
CG	COMMANDING GENERAL
CINC	UNIFIED COMBATANT COMMANDER IN CHIEF
CIO	CHIEF INFORMATION OFFICER
CIO	CHIEF INFORMATION OFFICER
CMC	COMMANDANT OF THE MARINE CORPS
COTS	COMMERCIAL OFF THE SHELF
CPG	COMMANDANT'S PLANNING GUIDANCE
CPI	CONTINUOUS PROCESS IMPROVEMENT
CSS	CAPABILITY SUSTAINMENT SYSTEM
CSSE	COMBAT SERVICE SUPPORT ELEMENT
DC/S	DEPUTY CHIEFS OF STAFF
DCMS	DIRECTOR, MARINE CORPS STAFF
DISN	DEFENSE INFORMATION SYSTEMS NETWORK
DMS	DEFENSE MESSAGING SYSTEM

DOD	DEPARTMENT OF DEFENSE
DOTES	DOCTRINE, ORGANIZATION, TRAINING AND EDUCATION, EQUIPMENT, AND SUPPORT
DPG	DEPARTMENT OF THE DEFENSE PLANNING GUIDANCE
DPG	DEFENSE PLANNING GUIDANCE
ERP	ENTERPRISE RESOURCE PLANNING
ESG	EXECUTIVE STEERING GROUP
FAA	FUNCTIONAL AREA ASSESSMENTS
FMF	FLEET MARINE FORCE
FONS	FLEET OPERATIONAL NEED STATEMENTS
FPII	FUNCTIONAL PROCESS IMPROVEMENT INITIATIVE
GAO	GENERAL ACCOUNTING OFFICE
GCCS	GLOBAL COMMAND AND CONTROL SYSTEM
GCE	GROUND COMBAT ELEMENT
GCSS	GLOBAL COMBAT SUPPORT SYSTEM
HQMC	HEADQUARTERS MARINE CORPS
HRD	HUMAN RESOURCE DEVELOPMENT
I&L	INSTALLATIONS AND LOGISTICS
ICOM	INPUT, CONTROL, OUTPUT, AND MECHANISMS
IDEF	INTEGRATED DEFINITION FOR INFORMATION MODELING
IM	INFORMATION MANAGEMENT
IMIP	INFORMATION MANAGEMENT IMPLEMENTATION PLAN
IMSG	INFORMATION MANAGEMENT STEERING GROUP
INS	INTEGRATED NEED STATEMENT
IPT	INTEGRATED PROCESS TEAM
IT-21	INFORMATION TECHNOLOGY FOR THE 21ST CENTURY
JROC	JOINT REQUIREMENTS OVERSIGHT COUNCIL
JSPS	JOINT STRATEGIC PLANNING SYSTEM
JTA	JOINT TECHNICAL ARCHITECTURE
KM	KNOWLEDGE MANAGEMENT
MAA	MISSION AREA ANALYSIS
MAGTF	MARINE AIR GROUND TASK FORCE
MARCORLOGBASES	MARINE CORPS LOGISTICS BASES
MARCORMATCOM	MARINE CORPS MATERIAL COMMAND
MARCORSYSCOM	MARINE CORPS SYSTEMS COMMAND
MARFOR	U.S. MARINE CORPS FORCE
MCBE	MARINE CORPS BUSINESS ENTERPRISE
MCBUL	MARINE CORPS BULLETIN

MCCDC	MARINE CORPS COMBAT DEVELOPMENT COMMAND
MCCLS	MARINE CORPS LESSONS LEARNED SYSTEM
MCCPIP	MARINE CORPS CONTINUOUS PROCESS IMPROVEMENT PROGRAM
MCE	MARINE CORPS ENTERPRISE
MCMP	MARINE CORPS MASTER PLAN
MCWL	MARINE CORPS WARFIGHTING LAB
MLCM	MATERIEL LIFE CYCLE MANAGEMENT
MNS	MISSION NEED STATEMENTS
MOS	MILITARY OCCUPATIONAL SPECIALTY
MSTP	MAGTF STAFF TRAINING PROGRAM
NMS	NATIONAL MILITARY STRATEGY
OMFTS	OPERATIONAL MANEUVER FROM THE SEA
ORD	OPERATIONAL REQUIREMENTS DOCUMENTS
OSI	OFFICE OF SCIENCE AND INNOVATION
OT	OPERATIONAL TEST
P&R	PROGRAMS AND RESOURCES
P4	PERSONAL FOR
PDS	PROGRESSIVE DATA SYSTEMS
POM	PROGRAM OBJECTIVE MEMORANDUM
POM	PROGRAM OBJECTIVES MEMORANDUM
PP&O	PLANS, POLICIES, AND OPERATIONS
PRG	PROGRAM REVIEW GROUP
RA	RESOURCE ALLOCATION
ROC	REQUIRED OPERATIONAL AND SUPPORT CAPABILITY
ROC	REQUIRED OPERATIONAL CAPABILITY
SA	SERVICE ADVOCACY
SDS	SOLUTION DEVELOPMENT SYSTEM
SECDEF	SECRETARY OF DEFENSE
SME	SUBJECT MATTER EXPERTS
SOP	STANDARD OPERATING PROCEDURE
SRA	SYSTEMS RESEARCH AND APPLICATIONS INTERNATIONAL
T/O&E	TABLE OF ORGANIZATION AND EQUIPMENT
TFS	TOTAL FORCE STRUCTURE
TQL	TOTAL QUALITY LEADERSHIP
USMC	U.S. MARINE CORPS
WDID	WARFIGHTING DEVELOPMENT INTEGRATION DEPARTMENT

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   MCCDC, Code C46
   1019 Elliot Rd.
   Quantico, VA 22134-5027

10. Director, Marine Corps Research Center.....1
MCCDC, Code C40RC
2040 Broadway St.
Quantico, VA 22134-5107

11. Director, Studies and Analysis Design.....1
MCCDC, Code C45
300 Russel Rd.
Quantico, VA 22134-5130

12. Chairman, Code IS.....1
Naval Postgraduate School
Monterey, CA 93943